

REVISION OF THE PSENINI OF THE ETHIOPIAN REGION,
INCLUDING MALAGASY
(HYMENOPTERA, SPHECIDAE, PEMPHREDONINAE)

by

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ABSTRACT

The following new forms are described and illustrated: *Psen* (*Psen*) *leclercqi* (♀); *Psen* (*Mimesa*) *empeyi* (♂); *Psenulus* *alveolatus* (♂), *P. aurifasciatus* (♀), *P. bidentatus pallidus* (♀ and ♂), *P. freetownensis* (♀ and ♂), *P. jacoti* (♀ and ♂), *P. leoninus* (♀), *P. oweni* (♀ and ♂), *P. rugifrons* (♀), *P. sapobaensis* (♀), *P. nelleburgi* (♀). A supplementary description of earlier named species is given and males of some of these species are described for the first time. The subgeneric position of the species of *Psen* and the relationships of the species of *Psenulus* are discussed. Provisional keys and a list of Ethiopian species are presented.

A few years ago Dr. H. Townes, Ann Arbor, kindly sent me about sixty African Psenini, mainly from Sierra Leone, for identification. Usually material of this group is not found in great numbers. This relatively large collection therefore stimulated the undertaking of a new revision of the Ethiopian Psenini.

In 1961 Prof. J. Leclercq published his catalogue of the species of the Ethiopian region including Malagasy. In that paper of fundamental importance, he recorded four species of the subgenus *Psen* and twenty species of *Psenulus*, of which ten were newly described. A description of *Psenulus garambae* (Leclercq, 1961b) followed soon afterwards.

The study of nearly all types or paratypes of known species, along with some small fresh collections, enabled me to give supplementary descriptions, where necessary. Furthermore, eleven new species and one subspecies have been added and the systematic status of a few forms, regarded as subspecies by Leclercq, has been reconsidered. At present 41 species and subspecies of Psenini are known from the Ethiopian region.

In all about 450 specimens have now been recorded, the majority of which I had at my disposal. The material not seen by me includes a few large series of the commoner species, like a series of over sixty *Psenulus capensis* from Garamba. It is evident that the above total is far from being representative for this large area. Nevertheless we have obtained a somewhat better idea of its Psenine fauna. Some species have dispersed over large areas, consisting of savanna as well as forest regions. *Psenulus capensis* Brauns, for instance, is found from the extreme South of Africa to as far north as Sierra Leone and Ethiopia, with very little variation in structure or colour. Of *Psenulus bidentatus* (Cameron) at least three subspecies can be distinguished. The nominate form occurs mainly in the savanna region, *pallidus* subsp. nov. in the forest region and the subspecies *rubrocaudatus* Turner in South Africa.

The subgenus *Mimesa* was already known from North Africa; the first representative of this subgenus of *Psen* south of the Sahara has now been found in Transvaal. The

subgeneric status of a few species, thus far thought to belong to *Psen* s.str., is discussed at the end of the present paper, where also an attempt is made to recognize some higher groups of *Psenulus*.

The few data we have concerning the bionomics of the Ethiopian *Psenini*, their prey (cf. *Psen silvaticus* Arnold, *Psen madecassus* Arnold, *Psenulus stevensonii* Arnold and *Psenulus capensis* Brauns) or their nesting (cf. *Psenulus patei* Arnold and *Psenulus capensis*) agree with our present knowledge of the bionomics of their Palaearctic or Indo-Australian relatives.

For generously sending me their material I am much indebted to the authorities and staff of the institutions as well as to the private entomologists mentioned below, preceded by abbreviations used in the following text:

AMG — Albany Museum, Grahamstown, Cape Province, South Africa; Dr. F. W. Gess

AMNH — The American Museum of Natural History, New York, U.S.A.; Dr. J. G. Rozen and Mrs. M. Favreau

BM — British Museum (Natural History), London, United Kingdom; Dr. I. H. H. Yarrow and Mr. C. R. Vardy

CNC — Canadian National Collection of Insects, Ottawa, Canada; Dr. C. M. Yoshimoto

EC — Collection H. N. Empey, Highlands North, Transvaal, South Africa

FAG — Faculté des Sciences Agronomiques de l'Etat, Gembloux, Belgium; Prof. J. Leclercq

HT — Collection H. Townes, Ann Arbor, U.S.A.

IRSNB — Institut Royal des Sciences Naturelles de Belgique, Brussels, Belgium; Dr. P. Dessart

MRAC — Musée Royal de l'Afrique Centrale, Tervuren, Belgium; Dr. J. Decelle

MS — Naturhistoriska Riksmuseet, Stockholm, Sweden; Dr. P. I. Persson

NMB — Naturhistorisches Museum, Basle, Switzerland; Dr. C. Baroni Urbani

OSUM — Oregon State University, Entomological Museum, Corvallis, U.S.A.; Dr. G. R. Ferguson

PMFV — Collection P. M. F. Verhoeff, Utrecht, The Netherlands

RM — National Museum of Rhodesia, Bulawayo, Rhodesia; Mr. F. C. de Moor

SAM — South African Museum, Cape Town, South Africa; Dr. A. J. Hesse

TM — The Transvaal Museum, Pretoria, Transvaal, South Africa; Dr. J. A. van Reenen

USNM — National Museum of Natural History, Smithsonian Institution, Washington D.C., U.S.A.; Dr. K. V. Krombein, Dr. P. D. Hurd and Dr. A. S. Menke

ZMB — Zoologisches Museum der Humboldt-Universität, Berlin, D.D.R.; Dr. E. Königsmann

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KEY TO THE SPECIES OF *Psen* S.L.

(the females of *P. empeyi*, *P. patellatus*, and the males of *P. leclercqi* and *P. silvaticus* are still unknown)

1. Females	2
— Males	5
2. Mesopleura including hypo-epimeral area coarsely striato-punctate. Scutum densely, coarsely punctate, interstices narrower than punctures. Petiole dorsally smooth	3
— Mesopleura much finer and more sparsely punctate. Scutum coarsely punctate	4
3. Propodeum finely reticulato-carinate, enclosed area ill-defined, more coarsely reticulato-carinate. Frons medially rugoso-punctate. Thorax black, pronotal tubercles and parts of pronotum red. Length 12 mm. Male unknown. Rhodesia	
	<i>Psen (Psen) silvaticus</i> Arnold
— Propodeum coarsely reticulato-carinate, enclosed area well-defined. Frons densely coarsely punctate, partly striato-punctate. Thorax largely black, pronotum, pronotal tubercles, anterior corners and narrow lateral margin of scutum, and upper two-thirds of anterior plate of mesepisternum reddish. Length 11.5 mm. Male unknown. Malagasy	
	<i>Psen (Psen) leclercqi</i> sp. nov.
4. Frons coarsely striato-punctate. Mesopleura more distinctly and more densely punctate, interstices 3 or 4 times diameter of puncture. Petiole dorsally smooth. Pygidial area finely coriaceous with a few irregular punctures along sides. Thorax and gaster completely black, legs dark. Length 14 mm. Zaire	
	<i>Psen (Psen) congolus</i> Leclercq
— Frons finely superficially punctate. Mesopleura finely and very sparsely, indistinctly, punctate. Scutum coarsely punctate, interstices usually at most as large as punctures. Petiole with fine latero-dorsal groove, in which a row of punctures, each with erect long hair. Pygidial area shining, with a few punctures along sides. Thorax including mesopleura largely dark reddish, gaster including petiole reddish-brown, tibiae reddish. Length 10—11 mm. Malagasy	
	<i>Psen (subgenus?) madecassus</i> Arnold
5. Apical margins of third and fourth gastral sternites with fasciculate hairs. Scutum striato-punctate. Mesopleura distinctly punctate. Black, fore and mid tibiae brownish. Length 12—13 mm. Zaire	
	<i>Psen (Psen) congolus</i> Leclercq
— Apical margins of third and fourth sternites without fasciculate hairs. Thorax largely dark reddish, or gaster partly reddish, or tarsi whitish	6
6. Frontal carina distinct. Mesopleura including hypo-epimeral area finely, very sparsely, punctate. Petiole with fine latero-dorsal groove, in which row of punctures, each with erect long hair. Thorax including mesopleura largely dark reddish, tibiae reddish, gaster including petiole reddish-brown. Length 8.5—9.5 mm. Malagasy	
	<i>Psen (subgenus?) madecassus</i> Arnold
— Frontal carina indistinct. Mesopleura densely punctate. Thorax black	7
7. Hypo-epimeral area dull, coarsely coriaceous. Mesopleura densely punctate, with narrow interstices. Scutum shining, densely punctate, interstices mostly larger than punctures. Antennae normal, gradually broadening towards apex. Legs normal. Ventral plate of petiole, first gastral tergite and base of second tergite reddish. Length 6.5 mm. Female unknown. South Africa	
	<i>Psen (Mimesa) empeyi</i> sp. nov.
— Hypo-epimeral area shining, with distinct, separate, punctures. Mesopleura densely	

finely punctate, narrow interstices. Scutum shining, densely somewhat irregularly punctate, interstices sometimes larger than punctures. Apical half of flagellum broadened, segments much concave below. Fore femora, fore tibiae and especially fore basitarsi broadened. Gaster black, all basitarsi whitish. Length 7 mm. Female unknown. South Africa *Psen* (subgenus?) *patellatus* Arnold

KEY TO THE FEMALES OF *Psenulus*

(the females of *P. alveolatus*, *P. avernus* and *P. trevirus* are still unknown)

1. Tempora with coarse sculpture. Interantennal carina much broadened. Transverse carina below antennae. Prescutal sutures long, on apical half at least slightly indicated. Propodeal enclosure with wide central area. Petiole usually short, cylindrical, base flattened. No distinct pygidial area. Apical margins of sternites 4—5 with dense fringe of long pale hairs (*Group of Psenulus turneri*) 2
- Tempora with much finer sculpture, in some species finely striate. Sternites 4—5 on apical margin with short pubescence, or with fringes of medium length (see *leoninus*, *reticulatus* and *sapobaensis*) 10
2. Second submarginal cell of fore wings petiolate 3
- Second submarginal cell of fore wings not petiolate, if triangular, see also *turneri* or *paulisae* 5
3. Apical part of fourth tergite and/or tergites 5—6 reddish, rarely also whole fourth tergite. Fore legs reddish, mid legs more or less brown, hind legs black. Antennae dorsally reddish-brown. Frons obliquely striato-punctate, vertex punctate with faint striae. Scutum rather coarsely punctate with traces of transverse striae. Propodeum behind enclosure irregularly striate. Mesopleura strongly punctate with tendency to striation. South Africa *turneri* Arnold
- Tergites 1—6 or 2—6 reddish. Antennae blackish dorsally. At least base of hind tibiae reddish. Upper part of propodeum obliquely striate 4
4. Frons below ocelli distinctly obliquely striato-punctate. Vertex shining, finely punctate. Clypeus distinctly bidentate. Mesopleura and scutum distinctly densely punctate with tendency to transverse striation. Fore femora yellowish-red, sometimes with brown streak behind; mid femora brown behind; hind femora black, hind tibiae dorsally brown with pale reddish base. Zaire, Sierra Leone . *paulisae* Leclercq
- Frons finely densely punctate, slightly striate near median carina. Vertex shining, very finely punctate. Clypeal margin slightly emarginate, teeth less distinct. Scutum and mesopleura much finer and more sparsely punctate. Fore and mid legs and also hind tibiae yellowish-red; hind femora partly brown. Male unknown. Zaire, Sierra Leone *erusus* Leclercq
5. Second submarginal cell of fore wings triangular or nearly so (see also *turneri* and *paulisae*); if slightly open, at least mid basitarsi pale yellowish. Upper part of propodeum striate. Frons more or less obliquely striato-punctate, or distinctly punctate. Tergites 1—2 or 1—3 black 6
- Second submarginal cell distinctly open dorsally (see also *patei* and *saltitans*). Frons striato-punctate or finely punctate. Gaster completely black or tergites 1—6 red, or upper part of propodeum coarsely reticulate 8
6. Apical margin of second tergite and tergites 3—6 completely reddish. Legs reddish, greater part of all femora dark brown, also back of mid tibiae and hind tibiae; mid

basitarsi yellowish-brown; hind tibiae with yellowish basal ring. Antennae slightly darkened dorsally. Mandibles yellowish-red. Vertex shining. Scutum shining, finely punctate, anteriorly somewhat striato-punctate. Mesopleura distinctly punctate, more sparsely than in *paulisae*, interstices smaller than punctures. Male unknown. Zaire *garambae* Leclercq

— Tergites 4—6 reddish (at most also margin of third tergite) 7

7. Second submarginal cell usually triangular or nearly so. Scutum shining, finely punctate, laterally with tendency to transverse striation. Tergites 4—6 reddish. Fore legs yellowish-red, underside of femora and trochanters brown; mid femora dark brown, underside of mid tibiae pale reddish-brown, basal fifth yellowish; hind femora and tibiae brownish-black, basal fourth of hind tibiae straw-yellow; all basitarsi pale yellowish, apex of hind basitarsi more or less darkened. Antennae dorsally slightly brownish. Male unknown. Rhodesia *patei* Arnold

— Second submarginal cell not completely closed. Scutum shining, slightly stronger, but still finely punctate, with very little tendency to transverse striation. Apical margin of third tergite and whole tergites 4—6 reddish. Fore femora almost completely brown, fore tibiae yellowish-red, fore tarsi yellowish; mid femora and tibiae brown, mid basitarsus pale yellowish; hind legs brown, tibiae without distinct basal ring. Antennae brownish dorsally. Male unknown. Rhodesia *salitans* Arnold

8. Gaster black, last tergite brownish. Legs black, fore tibiae, apex of fore femora and back of mid tibiae reddish-brown. Frons on either side of median carina convex, shining, very finely and sparsely punctate. Scutum shining, finely sparsely punctate. Prescutal sutures indistinct on posterior three-quarters part of scutum, indicated only by a line of punctures. Mesopleura distinctly punctate, interstices mostly larger than punctures. Upper part of back of propodeum finely obliquely striate. Larger species, length 8 mm. Petiole about one and one-quarter times as long as first tergite, in dorsal aspect. Male unknown. Sierra Leone *aurifasciatus* sp. nov.

— At least tergites 5—6 reddish 9

9. Tergites 1—6 reddish. All legs including trochanters completely reddish. Antennae dark brown above; scape, last segment completely and rest of segments below yellowish-brown. Frons, scutum and mesopleura finely punctate. Upper part of propodeum smooth and shining. Petiole shorter than first tergite, in dorsal aspect. Sierra Leone, Equatorial Guinea *freetownensis* sp. nov.

— Only tergites 4—6 or 5—6 completely reddish. At least mid and hind femora brown, fore tibiae and foreside of mid tibiae reddish, hind tibiae brown with yellowish-grey base. Antennae dorsally blackish-brown, scape and antennae below brownish. Frons above antennal sockets obliquely striato-rugose. Scutum and mesopleura striato-punctate. Upper part of propodeum coarsely reticulate, laterally somewhat obliquely striate. Petiole about as long as first tergite. Zaire, Sierra Leone . . . *ealae* Leclercq

10. First gastral tergite not distinctly nodose; or thorax with yellowish marking and gaster reddish or partly reddish-brown 11

— First gastral tergite nodose. Frontal carina narrow between antennae. No sharp transverse carina below antennae, at most a low ridge. Anterior margin of clypeus blunt. Prescutal sutures short. Thorax and gaster black. (Group of *Psenulus latianulatus*) 30

11. Raised part of interantennal carina more or less broadened, sometimes not excavate.

Prescutal sutures long (except in *reticulatus*), sometimes partly indistinct. Some species with reddish petiole and gaster 12

— Raised part of interantennal carina narrow (very slightly broadened in *dilectus*) between antennae. Prescutal sutures short. Never gaster including petiole reddish 27

12. Gaster and petiole reddish. Fore and mid legs whitish or yellowish. Distinct transverse carina below antennae 13

— At least petiole black, if petiole and first gastral tergite reddish-brown, legs not whitish or yellowish 15

13. Raised part of carina between antennae much broadened, ratio width-length about 1 : 1.5. Prescutal sutures long but not sharply defined. Scutum shining, distinct, irregular punctuation, sometimes with tendency to rugosity. Upper part of back of propodeum smooth. Petiole about one and one-third times as long as first tergite, in dorsal aspect. Pygidial area distinct, narrow. Pronotal dorsum, pronotal tubercles, hind margin of scutellum and metanotum ivory-white. Fore and mid legs including coxae ivory-white; hind legs yellowish-red, hind trochanters more or less yellowish-white. Malagasy *fulgidus* Arnold

— Carina between antennae slightly broadened, sometimes almost sharp. Petiole over one and a half times as long as first tergite, in dorsal aspect 14

14. Prescutal sutures distinct only on anterior third of scutum. Scutum with distinct separate punctures. Propodeum behind enclosure smooth, back reticulate, above with oblique striae. Pygidial area narrow, with parallel unsharp lateral carinae. Pronotum yellow dorsally, in var. *alboscutellatus* Arnold also scutellum and metanotum yellow. Fore and mid legs including trochanters yellowish, hind legs reddish. Antennae reddish, base dorsally slightly darkened. Malagasy *reticulatus* Arnold

— Prescutal sutures distinct on about two-fifths part of scutum, continued by a row of punctures. Scutum with variable, distinct separate punctures. Behind propodeal enclosure narrow smooth margin, back-side obliquely striate. No pygidial area. Mid tibiae on outer apex with longitudinal groove. Pronotum medially and metanotum somewhat brownish (discoloured?). Fore and mid legs including trochanters and mid coxae straw-yellow, hind legs including coxae reddish. Antennae dorsally dark brown, last segment above and flagellum below reddish-brown. Male unknown. Nigeria *sapobaensis* sp. nov.

15. Apex of pygidium with single sharp and long median longitudinal carina. Frontal carina between antennae only slightly broadened. Frons finely punctate. Distinct transverse carina below antennae. Prescutal sutures long. Back of propodeum smooth. Petiole about one and a half times as long as first tergite, in dorsal aspect. Petiole except ventral plate black, gaster reddish. Pronotal tubercles and tegulae yellowish-red. Fore and mid legs except back of femora and base of hind tibiae yellowish, hind femora and apex of hind tibiae brown. Zaire *benoiti* Leclercq

— Pygidium without single longitudinal carina 16

16. No transverse carina below antennae. Broadened part of raised interantennal carina indistinctly closed below. Protruding median part of clypeal margin slightly emarginate, almost blunt. Frons and vertex densely finely punctate. Scutum densely finely punctate, slightly transversely rugose, prescutal sutures with short transverse striae and deep alveoles. Petiole at least one and a half times as long as first gastral tergite, in dorsal aspect. Pygidial area elongate-triangular. Gaster black. All tibiae and tarsi

whitish; fore and mid tibiae below and apical half of tibiae, except a narrow line above, brownish. Male unknown. Rhodesia *kohli* Arnold

— Distinct transverse carina below antennae, sometimes fine and only visible in ventral aspect. At least tergites 5—6 reddish or hind tibiae dark 17

17. Petiole little longer than first tergite. Apical margins of fourth and fifth sternites with fringe of yellowish-golden hairs, at least as long as width of base of hind basitarsi, but shorter than in group of *turneri*. Frontal carina ending normally as single carina in transverse carina below antennae, transverse carina almost rectangular in frontal aspect. Scutum partly transversely striato-punctate and also with some very large punctures. Prescutal sutures ill-defined. Apical half of pygidial area narrow with parallel carinae. Apical margin of first tergite and tergites 2—6 completely reddish. Legs reddish, back of mid femora and hind femora except underside dark brown. Fore and mid basitarsi yellowish. Length about 6 mm. Male unknown. Sierra Leone *leoninus* sp. nov.

— Petiole much longer. Apical margins of fourth and fifth sternites without fringes of long hairs 18

18. Raised part of frontal carina much broadened between antennae, broadened part usually not closed below but ending with two parallel carinae in transverse carina below antennae. Upper part of propodeum finely obliquely striate. Pygidial area distinct. Fore and mid legs not whitish, at most mid basitarsi 19

— Carina between antennae much less broadened, or broadened part short and inter-antennal carina ending as a single carina in transverse carina. Lateral carinae of pygidial area not well-defined, if more distinct, fore and mid legs extensively whitish. Petiole about twice as long as first tergite, in dorsal aspect 23

19. Gaster black, at most last tergite brownish, or petiole completely and first tergite partly reddish-brown 20

— Gaster partly reddish 21

20. Frons very finely obliquely striate, vertex with weak sculpture. Scutum dull, superficially transversely striate and with some larger punctures. Petiole more than twice as long as first tergite, in dorsal aspect. Antennae reddish, apical half darkened. Fore and mid legs reddish-brown; at least mid basitarsi yellowish-white; hind legs entirely brown. Pronotal tubercles blackish; gaster black. Length 7 mm. Rhodesia *stevensoni* Arnold

— Frons shining, finely punctate, vertex almost impunctate. Scutum shining, anterior two-thirds sparsely punctate. Petiole less than twice as long as first tergite. Antennae reddish-brown, segments 7—11 more or less darkened dorsally. Fore and mid legs including mid basitarsi and base of hind tibiae reddish-brown; fore and mid femora partly darkened, hind femora black, hind tibiae dark brown. Pronotal tubercles reddish-brown. Gaster black, petiole at least ventrally and laterally partly reddish-brown, also first tergite more or less brown, apex of last segment yellowish-red. Length 7 mm. South Africa *jacoti* sp. nov.

21. Apical margin of fourth tergite and tergites 5—6 completely reddish. Mid basitarsi brown. Scutum dull, finely punctate. Petiole over twice as long as first tergite, in dorsal view. Pygidial area broader, lateral carinae slightly converging towards apex. Length 8 mm. Male unknown. Rhodesia *luctuosus* Arnold

— Gastral tergites 1—6 reddish. Pygidial area narrow 22

22. Frons very finely punctate, vertex almost impunctate. Petiole over twice as long as

first tergite, in dorsal aspect. Antennal segment 1—12 reddish below. Greater part of mandibles reddish-brown. Legs brown, fore tibiae and tarsi reddish, mid basitarsi testaceous. Length 7.75 mm. Male unknown. Zaire *lusingae* Leclercq

— Frons finely densely striato-punctate, vertex indistinctly striate. Petiole slightly over one and three-quarters times as long as first tergite, in dorsal aspect. Antennae black, only small central part of segments 5—12 below reddish-brown. Mandibles darker. Legs black, last tarsal segments, underside of fore tibiae and base of hind tibiae brownish. Length 7 mm. Male unknown. Ethiopia *rugifrons* sp. nov.

23. Tergites 1—6 or 2—6 reddish 24

— At least tergites 1—3 black or very dark brown. Fore and mid basitarsi reddish-brown 26

24. Pronotal tubercles at most partly reddish or reddish-brown (very rarely yellowish; if so cf. *bidentatus pallidus*). Fore and mid legs reddish, underside femora brownish, base of fore tibiae often somewhat yellowish, rarely a narrow yellowish streak on foreside, fore and mid basitarsi yellowish or yellowish-red; hind legs reddish on inner side, dark brown on outer side, base of hind tibiae usually dark. Mandibles reddish. Antennae reddish, apical half dorsally brown. First gastral tergite mostly dark brown (reddish in female from Angola). Punctuation of scutum superficial, interstices larger than punctures, slight tendency to transverse striation. Propodeum with narrow smooth margin behind enclosed area, back dorsally obliquely striate, below irregularly carinate. Pygidial area dull, lateral carinae not sharp, parallel. Length 8.5—9.5 mm. Tanzania, Kenya, Rhodesia, Angola, Zaire *bidentatus bidentatus* (Cameron)

— At least posterior half of pronotal tubercles and foreside of fore tibiae distinctly yellowish. Tergites 1—6 or apex of first tergite and tergites 2—6 completely reddish. Length 7.5—8 mm 25

25. Only pronotal tubercles, foreside of fore tibiae, base of mid tibiae, and fore and mid basitarsi yellowish or whitish. Base of hind tibiae paler than rest of hind tibiae. Punctuation of scutum coarser than in *bidentatus bidentatus*, more striato-punctate with interstices larger than punctures and more strongly transversely striate. Sculpture on back of propodeum reaching enclosed area, except laterally. Pygidial area as in nominate subspecies. Length 7.5 mm. Zaire, Rhodesia, Malawi, Equatorial Guinea *bidentatus pallidus* subsp. nov.

— Pronotum partly, pronotal tubercles and metanotum yellow. Fore and mid legs yellowish-white, femora with light brown streak behind; greater part of hind legs brown. Scutum finely punctate, slight tendency to transverse striation. Propodeum behind enclosed area smooth, back with oblique striae above and irregular carination below. Pygidial area dull, more distinctly defined, almost rectangular and with two rows of fine punctures. Length 8 mm. Male unknown. Nigeria, Sierra Leone *nigeriae* Leclercq

26. At least tergites 5—6 as well as apical half of fourth tergite reddish. Thorax black, pronotal tubercles partly dark brown. Fore legs except trochanters reddish-brown, underside of fore femora darker; mid legs reddish-brown, underside of femora and tibiae dark brown; hind legs dark brown or black. Mandibles reddish. Scutum with large, somewhat superficial punctures and distinct transverse rugae especially on outer side of prescutal sutures. Narrow smooth margin behind enclosed area of propodeum, back with fine oblique striae, medially sometimes reaching enclosed area.

Pygidial area as in *bidentatus bidentatus*. Length 8.75 mm. Male unknown. South Africa *bidentatus rubrocaudatus* Turner

— Tergites 4—6 reddish-brown. Thorax black including pronotal tubercles. Legs somewhat darker reddish-brown, except fore basitarsi. Mandibles reddish. Scutum finer punctate, very little tendency to transverse striae. Narrow smooth margin behind enclosed area, back side dorsally with distinct fine oblique striae. Length 9.5 mm. Male unknown. Ethiopia *bidentatus* subsp. nov.?

27. No well-defined pygidial area. Scutum transversely rugoso-punctate. Petiole less than twice as long as first tergite. This tergite of usual shape. Upper part of propodeum laterally with oblique striae, on either side of median sulcus a smooth area. Back of propodeum with coarse reticulate carination. Distinct transverse carina below antennae. Median part of pronotum, and whole metanotum, yellowish. Petiole black, tergites 1—6 reddish. Fore and mid legs yellow, fore and mid femora brown below, hind femora completely brown. Antennae dorsally dark brown. Length 7.5 mm. Male unknown. Zaire, Uganda *ghesquierei* Leclercq

— Distinct narrow pygidial area. Scutum shining, finely punctate. First gastral tergite slightly nodose 28

28. Hind legs and tergites 1—6 reddish. Pronotum dorsally, pronotal tubercles, small marks on scutum, scutellum, metanotum, large part of back of propodeum and a mark on anterior plate of mesepisternum pale yellow, also fore and mid legs. Petiole black with yellowish base. Transverse carina below antennae lacking or indistinct. Back of propodeum almost completely smooth. Length 8—9 mm. Sierra Leone *oweni* sp. nov.

— Hind legs mostly brown, gaster brownish or base of segments dark brown and only apical margins dark reddish 29

29. Pronotum, pronotal tubercles, four marks on scutum, scutellum, metanotum, back of propodeum and parts of sides of thorax yellow. Base of petiole yellow, remainder dark brown, gaster brownish. Fore legs mostly yellow; foreside mid legs yellowish, back-side brownish-red; hind legs brown but back of femora partly yellow. Fine transverse carina below antennae. Upper part of propodeum smooth, lower two-thirds of back-side with fine reticulate carination. Petiole about twice as long as first tergite. Length about 10.5 mm. Male unknown. Equatorial Guinea *uelleburgi* sp. nov.

— Pronotum dorsally, pronotal tubercles, scutellum and metanotum yellowish-red. Petiole reddish-brown or darker brown, base of tergites dark brown, apical margins dark reddish. Fore and mid legs including trochanters reddish, mid femora brownish behind, hind legs brown, base of tibiae reddish. Transverse carina below antennae fine or indistinct, vertical carinae downwards from outer side of antennal sockets distinct. Propodeum behind enclosed area smooth, back-side finely punctate, apex finely reticulate. Petiole slightly longer than first tergite. Length 8 mm. Male unknown. Malagasy *dilectus* Saussure

30. Lateral corners of pronotum obtuse. No sharp transverse carina below antennae, at most an indistinct ridge, but below outer side of each antennal socket a short vertical carina, in dorsal aspect protruding like a tooth. Punctuation of scutum variable, sometimes very coarse. Upper part of back of propodeum usually distinctly obliquely striate. Pygidial area indistinct. Foreside of fore and mid tibiae yellow, also

fore and mid basitarsi and base of hind tibiae. Length about 7 mm. South Africa, Mozambique, Malawi, Zambia, Tanzania, Uganda, Zaire, Sierra Leone. The subspecies *laevior* Arnold, Ethiopia, female unknown, is distinguished by the brown femora and weaker sculpture of scutum and propodeum . *capensis capensis* Brauns

— Lateral corners of pronotum sharp. No distinct transverse or vertical carinae below antennae, sometimes a small low shining tubercle below antennae. Punctuation of scutum variable but usually finer than in *capensis*. Propodeum behind enclosed area usually smooth. At least foreside of fore and mid tibiae more or less yellowish. Larger 31

31. Fore tarsi, a part of mid basitarsi, and base of hind tibiae yellowish-white. Punctuation of scutum variable, usually fine and sparse. Pygidium with two indistinct, close, parallel carinae at apex. Length 8—9 mm. Tanzania, Rhodesia, Uganda, Zaire, Nigeria, Sierra Leone *latiannulatus latiannulatus* (Cameron)

— Mid basitarsi and base of hind tibiae black or dark brown. Punctuation of scutum stronger. Distinct narrow pygidial area, with very close, parallel carinae. Length 7.75 mm. Zaire, Rwanda, Cameroon *latiannulatus basilewskyi* Leclercq

KEY TO THE MALES OF *Psenulus*

(the males of *P. aurifasciatus*, *P. dilectus*, *P. erusus*, *P. garambae*, *P. ghesquierei*, *P. kobli*, *P. leoninus*, *P. luctuosus*, *P. lusingae*, *P. nigeriae*, *P. patei*, *P. rugifrons*, *P. saltitans*, *P. sapobaensis*, and *P. uelleburgi* are still unknown)

1. Tempora coarsely, mostly longitudinally, striato-reticulate. Raised part of carina between antennae more or less broadened. Antennae with tylloidea. Anterior margin of pronotum alveolate. Prescutal sutures long, almost reaching hind margin of scutum. At least thorax and petiole black . . . (Group of *Psenulus turneri*) 2
- Tempora much less coarsely sculptured, sometimes finely striate (see *benoiti*) . 6
2. Upper part of back of propodeum smooth. Frons shining, finely punctate. Antennal segments long, segments 3 (or 4)—8 with distinct tylloidea. Scutum shining, finely punctate. Second submarginal cell of fore wings open dorsally. Tergites 1—6 reddish, only last sternites slightly brownish, all legs reddish. Sierra Leone, Equatorial Guinea *freetownensis* sp. nov.
- Upper part of back of propodeum coarsely sculptured. At least first tergite completely black 3
3. Second submarginal cell not petiolate or triangular, dorsally open. Frons obliquely striate. Antennal segments 8—12 at least one and a half times as long as broad at apex, third segment with very small tylloidea, segments 4—10 with distinct long tylloidea, on third and 11th segment at most a small point. Scutum strongly transversely striate. Petiole about one and a half times as long as first tergite, in dorsal aspect. Tergites 1—3 black or dark brown. Fore and mid tibiae and tarsi and foreside of fore and mid femora reddish; back of fore and mid femora, as well as hind legs completely, brown except pale yellowish base of hind tibiae. Zaire, Sierra Leone *edae* Leclercq
- Second submarginal cell petiolate (rarely triangular in *turneri* or *paulisae*). Base of hind tibiae dark 4

4. Petiole nearly one and one-third times as long as first tergite, in dorsal aspect. Frons obliquely striate. Antennae moniliform, segments 8—12 little longer than broad, segments 3—10 with distinct tylotidea, small on tenth segment. Scutum distinctly punctate, slight tendency to transverse striation. Prescutal sutures with large alveoles. First tergite, basal two-thirds of second tergite and sides of tergites 3—5 partly black. Fore and mid legs including trochanters reddish, also hind tibiae and tarsi, hind femora brown. Zaire, Sierra Leone (description based on male from Sierra Leone) *paulisae* Leclercq

— Petiole usually distinctly longer, about one and a half \times or twice as long as first tergite, in dorsal aspect, or scutum more coarsely sculptured 5

5. Petiole about one and a half times as long as first tergite, in dorsal aspect. At least tergites 1—3 fully black, fourth tergite more or less darkened. Fore legs including trochanters reddish-brown, femora brown below, mid legs reddish-brown, darkened below, trochanters brown; hind legs for greater part dark brown. Antennal segments 3—8 about one and a half times as long as wide at apex, segments 4—8 with distinct small tylotidea, 9—10 with indistinct tylotidea. Frons obliquely striate, vertex more superficially striato-punctate. Scutum more coarsely punctate than in *paulisae*, with some transverse rugae, especially across the prescutal sutures, and large alveoles. South Africa *turneri* Arnold

— Petiole nearly twice as long as first tergite. First tergite and two-thirds of second tergite black, greater part of sternites 2—4 blackish-brown. Fore legs including trochanters reddish-brown, mid legs slightly darker brown, hind legs dark brown. Antennal segments 3—8 about one and a half times as long as wide at apex, segment 3 with small tylotidea, segments 4—8 with longer, distinct, tylotidea. Frons and interocellar area coarsely, frons obliquely, striato-punctate, vertex between ocelli and oculi more finely striato-punctate. Anterior half of pronotal dorsum with stronger longitudinal short carinae, alveolate. Scutum distinctly punctate, tendency to transverse striation, rugae across prescutal sutures very coarse, alveoles larger than in *turneri*. Female unknown. Rhodesia *alveolatus* sp. nov.

6. First gastral tergite not distinctly nodose, or tergites 1—6 or 2—6 reddish . . . 7

— First gastral tergite distinctly nodose. Prescutal sutures short. Raised part of frontal carina between antennae sharp. Gaster black, fore and mid tibiae at least partly yellowish or yellowish-white (Group of *Psenulus latiannulatus*) 16

7. Petiole and gaster reddish. Interantennal carina not distinctly broadened between antennae, as it is in female. Upper part of back of propodeum smooth behind enclosed area. Petiole about one and a half times as long as first tergite 8

— Petiole black, at most base yellowish, or sides dark reddish-brown 9

8. Scutum coarsely transversely striato-punctate. Mesopleura coarsely punctate, hypopimeral area more finely. No tylotidea on antennal segments. Scape of antennae yellow, rest of antennae yellowish-brown, brownish above. Pronotum, pronotal tubercles, tegulae, hind margin of scutellum and metanotum yellow. Fore and mid legs including trochanters yellow; hind legs including coxae yellowish-red. Length 6 mm. Malagasy *fulgidus* Arnold

— Scutum shining, with punctures of variable size, interstices mostly larger than punctures. Mesopleura finely punctate. Antennal segments 3 (or 4)—13 with distinct oblique tylotidea. Scape of antennae yellow, rest of antennae reddish. Two marks on pronotum, and pronotal tubercles, yellow or yellowish-white. In var.

alboscutellatus Arnold also scutellum with yellowish-white mark. Fore and mid legs including trochanters whitish, femora brownish below and last tarsal segments reddish; hind legs including coxae reddish. Length 8.5 mm. Malagasy *reticulatus* Arnold

9. Thorax and gaster black, at most pronotal tubercles and sides of petiole reddish-brown. Interantennal carina broadened. Median part of propodeal enclosure rather broad. Upper part of back of propodeum finely obliquely striate. Petiole long . 10

— Gaster more or less reddish 11

10. Petiole at least twice as long as first gastral tergite, in dorsal aspect. Frons with superficial oblique striae. Antennal segments 10—12 about as long as broad; segments 3—13 with tyloidea. Scutum transversely striato-punctate, prescutal sutures almost reaching hind margin. Pronotal tubercles dark brown. Legs and veins of fore wings reddish-brown. Petiole completely black. Gaster with somewhat appressed silvery pubescence. Length 6 mm. Rhodesia *stevensi* Arnold

— Petiole little more than one and a half times as long as first tergite. Frons shining, finely punctate. Antennal segments 10—12 about one and a half times as long as broad; segments 4—11 with tyloidea, indistinct tyloidea on segment 12. Scutum shining, scarcely finely punctate, prescutal sutures posteriorly slightly indicated. Pronotal tubercles reddish-brown, sides of petiole somewhat reddish-brown. Legs black, fore tibiae and tarsi and underside of mid and hind tibiae yellowish-brown. Veins of wings black. No appressed silvery pubescence on gaster. Length nearly 7 mm. South Africa *jacoti* sp. nov.

11. Scutum distinctly or indistinctly transversely rugoso-punctate. Propodeum black. Petiole at least twice as long as first tergite. Antennae very strongly moniliform, with tyloidea. Interantennal carina slightly or not broadened 12

— Scutum smooth, finely punctate, or coarsely punctate and back of propodeum with yellow marking. Antennae not strongly moniliform 13

12. Pronotal tubercles dark brown. Fore and mid legs reddish-brown, basitarsi paler, femora below dark brown, hind legs dark brown. Mandibles reddish. Base of petiole dark brown or black. Gastral tergites 2—6 reddish. Pronotum and metanotum black. Scutum with coarse punctures and light transverse rugae. Narrow smooth margin behind propodeal enclosure, sometimes lacking. Length 8 mm. Tanzania, Rhodesia, Kenya, Angola, Zaire *bidentatus* *bidentatus* (Cameron)

— Pronotal tubercles yellowish or yellowish-red. Fore and mid tibiae yellow, basitarsi whitish. Mandibles yellowish. Base of petiole somewhat yellowish-red (not in female). Gastral tergites 1—6 or 2—6 reddish. Pronotum partly and metanotum more or less yellow, rarely black. Scutum with distinct punctures and feeble transverse rugae. Broader smooth margin behind enclosed area of propodeum. Length 7 mm. Zaire, Equatorial Guinea, Rhodesia and Malawi . *bidentatus* *pallidus* subsp. nov.

13. Thorax black. Prescutal sutures long. Frontal carina more or less broadened between antennae. Scutum finely punctate 14

— Thorax and propodeum with yellow marking. Prescutal sutures short, one-third or one-half of length of scutum. Raised part of frontal carina narrow between antennae. First gastral tergite slightly nodose. No tyloidea 15

14. Upper part of propodeum smooth, back-side coarsely reticulate. Petiole about one and one-third times as long as first gastral tergite, in dorsal aspect. Antennal segments slightly rounded below, no distinct tyloidea. Pronotal tubercles yellowish-brown.

Tergites 1—6 reddish. Fore and mid legs reddish, hind legs brown. Zaire *benoiti* Leclercq

— Upper part of propodeum shining, indistinctly obliquely striate, back with coarse reticulate carination. Petiole about two and one-third times as long as first tergite. Antennal segments more cylindrical, less rounded below, segments 3—12 with very fine narrow shining tyloidea, indistinct on twelfth segment. Pronotal tubercles dark brown. First gastral tergite brownish, 2—6 reddish. All femora blackish-brown, fore and mid tibiae brown. Female unknown. Zaire *avernus* Leclercq

15. Anterior lateral corners of pronotum obtuse. Scutum coarsely punctate, scutellum and metanotum almost impunctate. Upper part of propodeum behind enclosed area smooth, rest coarsely reticulate. Sides of propodeum with narrow smooth anterior margin. Mesopleura distinctly punctate, interstices about three or four times as wide as punctures. Petiole about one and one-third times as long as first tergite, in dorsal aspect. Pronotum, pronotal tubercles, two square marks on scutellum, metanotum, two marks on back of propodeum and small spot on anterior plate of mesepisternum, brownish-yellow. Base of petiole yellowish-white, tergites 2—6 reddish, base of second tergite black. Fore and mid legs including trochanters brownish-yellow, back of femora brown; hind trochanters and femora brown, median part of hind tibiae brownish, rest of hind legs reddish. Female unknown. Zaire *trevirus* Leclercq

— Anterior lateral corners of pronotum sharp. Scutum shining, very finely punctate. Upper part of propodeum smooth, back coarsely reticulate, sides of propodeum with broad smooth anterior margin. Mesopleura finely punctate, interstices larger. Petiole about one and a half times as long as first gastral tergite. Pronotum, pronotal tubercles, two or four small longitudinal marks on scutum, scutellum, metanotum, four marks, connected below, on back of propodeum and a small spot on anterior plate of mesepisternum, whitish-yellow. Base of petiole yellowish-red, tergites 1—6 reddish, first tergite more or less darkened. Fore and mid legs including trochanters pale yellow, femora brown below; hind legs including trochanters dark brown, underside femora and basal half of tibiae more reddish. Sierra Leone *oweni* sp. nov.

16. Anterior lateral corners of pronotum with obtuse angle. Antennal segments 4—12 behind, on line between dark brown upper side and yellowish-brown underside, with low but distinct tyloidea. Scutum with coarse variable punctuation, apically finer but more densely punctate. Upper part of propodeum behind enclosed area completely rugoso-striate. Black; fore and mid tibiae, except brown mark below, and tarsi yellow, base of hind tibiae whitish. Length about 7 mm. South Africa, Mozambique, Malawi, Zambia, Tanzania, Uganda, Zaire, Sierra Leone, Ethiopia (subspecies *laevior* Arnold, distinguished by brown femora and weaker sculpture of scutum and propodeum) *capensis capensis* Brauns

— Anterior lateral corners of pronotum more or less sharp, never obtuse. Antennae without distinct tyloidea. Upper part of propodeum behind enclosed area usually at least partly smooth, or base of hind tibiae dark. Length 7.5—8 mm 17

17. Mid basitarsi and base of hind tibiae whitish, apart from other yellowish-white parts of fore and mid legs. Antennae dorsally black, reddish-brown below. Punctuation of scutum distinct, interstices large, punctures usually small, rarely larger. Upper part of propodeum behind enclosed area near median sulcus usually smooth. Anterior lateral corners of pronotum more or less sharp. Length 8 mm. Tanzania, Rhodesia, Uganda, Zaire, Nigeria, Sierra Leone *latiannulatus latiannulatus* (Cameron)

— Mid basitarsi and base of hind tibiae dark brown. Antennae dorsally blackish-brown, below on basal half reddish-brown, on apical half brown. Punctuation of scutum coarser. Upper part of propodeum behind enclosed area obliquely striate or rugose. Anterior lateral corners of pronotum sharp. Length 7.5 mm. Zaire, Rwanda, Cameroon *latiannulatus basilewskyi* Leclercq

Psen (Psen) silvaticus Arnold

Arnold, 1924: 38—39, ♀ (*Psen silvaticus*; Rhodesia).
Leclercq, 1961a: 15, ♀ (*Psen (Psen) silvaticus*; Rhodesia).

Material studied: Rhodesia: 1 ♀ (holotype), "Cloudlands, 6000 ft, Vumba Mts, 6—17 April, 1923", 1 ♀, Vumba Mts, Umtali dist., 7 March, 1930, coll. R. H. R. Stevenson, 1 ♀, Vumba Mts, March, 1930, coll. R. H. R. Stevenson, 2 ♀, Vumba, March, 1930, coll. R. H. R. Stevenson, 1 ♀, Vumba Mts, 1 March, 1938, coll. G. Arnold (RM); 1 ♀, Vumba, March, 1930, coll. R. H. R. Stevenson (SAM).

Arnold (1924) recorded the holotype as follows: "Mt. Chinzewa, 6200 ft, Vumba Range, near Umtali, S.R. One female taken flying round a species of wild raspberry in the hollow stems of which it probably nests. Type in R.M. coll." Mr. F. C. de Moor kindly checked his topocadastral map of the Vumba Mountains area because of the discrepancy between the locality label under the type and Arnold's record. In his letter, 10 May, 1973, he writes: "Cloudlands is a Private Game reserve, the highest point on this farm is an unnamed mountain with a beacon "Castle Beacon 6245 feet". I can find no reference to Mt. Chinzewa however".

Mr. de Moor also reported to me that in March, 1930 in total ten specimens were collected in the Vumba Mts., with the following note written by Arnold: "Nesting in cracks in old rotten tree stump (prone). All ten specimens taken from same spot in dull weather."

Under one of these specimens the prey has been pinned, an adult Homopteron belonging to the Cercopidae, about 7 mm long. Cercopidae have been recorded earlier as the prey of Palaearctic and Indo-Australian species of *Psen*.

Supplementary description. — Frontal carina distinct on lower half of frons, on upper half almost absorbed by the coarse close punctuation. Arnold's figure of the head wrongly gives the impression that there is a transverse carina below the antennae. In reality two very fine carinae connect the interantennal tooth with the inner side of the antennal sclerites (Fig. 1). Propodeal enclosure ill-defined, with irregular reticulate carination, back very finely reticulato-carinate. Hypo-epimeral area striato-punctate, like adjacent part of mesopleura. Outer epicnemial carinae below hardly receding backwards. No acetabular carina. Mesosternum dull, finely densely superficially punctate, fine median longitudinal carina. Mesopleura on lower part shining, with large punctures and tendency to striation. Upper longitudinal half of hind femora smooth, separated from normally pubescent lower part by a narrow longitudinal area of dense fine punctuation and fine short hairs, somewhat broadened near apex, not distinctly depressed there. Petiole cylindrical with long lateral hairs, directed obliquely downwards, sometimes worn off.

This species much resembles *P. leclercqi* sp. nov. from Madagascar.

***Psen (Psen) congolus* Leclercq**

Leclercq, 1961a: 15—16, ♀ and ♂ (Zaire).

I have examined one of the paratypes (a male) from Lubumbashi (Elisabethville), Dec., 1933, coll. M. Bequaert (FAG). The structure of the epicnemial area and of the mesosternum agrees with that of the Indo-Australian representatives of the subgenus *Psen*. The acetabular carina is short. Hind margins of third and fourth sternites with tufts of long brownish hairs.

***Psen (Psen) leclercqi* spec. nov.**

Female. — Head black; mandibles reddish-brown except dark tips, labrum reddish-brown, palpi yellowish-brown, antennae black but underside of scape, of second, third and 12th segment reddish-brown. Thorax black, with following parts reddish-brown: pronotum dorsally and upper part of foreside, pronotal tubercles, anterior corners of scutum and a narrow margin along tegulae, upper two-thirds of anterior plate of mesepisternum and tegulae. Legs black with following parts reddish-brown: fore tibiae and tarsi, underside of mid and hind tibiae, and tarsi. Calcaria yellowish-brown. Petiole reddish, gaster black but greater part of first and second gastral tergites, apex of last segment and greater part of sternites reddish-brown. Veins of wings black but basal part and stigma reddish-brown.

Clypeus feebly convex, like supra-clypeal area densely but superficially punctate, protruding median part slightly emarginate (Fig. 2, 3). Frontal carina reaching groove around median ocellus but almost absorbed by sculpture of frons. Carina ending below antennae in low triangular tooth, connected with inner side of antennal sclerites by fine carinae. Frons flat, up to ocelli densely striato-punctate, interstices shining, very narrow margin along oculi finer and sparsely punctate. Punctuation between ocelli fine, interstices about as wide as punctures. Vertex behind ocelli with close and large punctures, laterally coarser and somewhat striato-punctate, with only a few smooth places about as large as punctures. Postocellar region not distinctly raised. Temples finely but distinctly punctate, interstices about as wide as punctures or slightly more. Occipital carina ending in hypostomal carina, both narrow and high, but lower than in *P. madecassus* Arnold. Scape of antennae long, at least three times as long as wide, third segment nearly four times, fourth segment more than twice, segments 5—7 about one and a half times, eighth segment about one and a third times as long as wide at apex, segments 9—11 slightly longer than wide, 12th segment about twice as long as broad at base.

Pronotal corners obtuse. Scutum densely and coarsely rugoso-punctate (Fig. 4), interstices shining, medially not more than a narrow line. Prescutal sutures indicated by a row of much finer punctures. Scutellum somewhat striato-punctate, interstices larger than punctures, metanotum with irregular longitudinal carinae. Propodeal enclosure depressed, lateral parts with oblique longitudinal carinae, central part with irregular carination; back of propodeum with coarse irregular reticulate carination reaching enclosed area. Sides of propodeum with oblique carinae and fine punctures between. Mesopleura coarsely striato-punctate, striae posteriorly more striking, lower part finer sculptured, hypo-epimeral area coarsely densely punctate. Epicnemial areas almost smooth, inter-epicnemial area finely punctate, mesosternum depressed behind short acetabular carina, antero-laterally obliquely striato-punctate, medially with strong transverse carinae. Meta-

pleura shining, with some low longitudinal rugae on posterior half. Anterior plate of mesepisternum with irregular long, partly vertical, striae; anterior oblique suture foveolate, widened upper part with transverse striae, continuing on hypo-epimeral area. Epicnemial carina below normally curved backwards. Metasternum with deep triangular emargination.

Femora heavy, hind tibiae dorsally with row of short thick thorns and thin long white spines. Base of second submarginal cell of fore wings about one and a half times as long as upper side, receiving first recurrent vein at about one-third from inner side; second recurrent vein ending in this cell very near outer side.

Petiole as long as first two tergites and half third tergite, dorsally completely smooth, impunctate, apically somewhat flattened, sides longitudinally slightly depressed, only lower keel distinct, ventrally an indistinct blunt median longitudinal keel. Tergites basally very finely punctate, on third tergite deeper than on second tergite; interstices about as wide as punctures, on apical two-thirds interstices a few times as wide as punctures. Margin of fourth tergite narrowly, of fifth broadly impunctate. Pygidial area elongate-triangular, defined by distinct carina, apex rounded, surface shining but extreme apex dull, laterally a few small punctures, each bearing a short stiff hair (Fig. 5). Sternites sparsely punctate, somewhat more densely at base, especially antero-laterally on second sternite.

Clypeus with appressed golden pubescence and long erect hairs. Supra-clypeal area and lower part of frons with less appressed golden pubescence; upper part of head with longer, brownish pubescence. Temples with erect greyish pubescence, pronotum with appressed greyish-white pubescence, thorax with long and dense pubescence, brownish on scutum, whitish on rest of thorax, denser on mesosternum. Legs with greyish hairs, base and apex of hind tibiae on inner side and underside of hind basitarsus with very dense and short, yellowish-golden pubescence. Upper half of back of hind femora smooth and shining, separated from normally pubescent lower half by a dorsally sharply defined narrow line of fine dense punctuation and short pubescence. Petiole below lower lateral longitudinal carina with row of fine punctures, each bearing a long obliquely downwards directed hair and also with a row of dense short hairs, densest apically. Tergites sparsely reddish-brown pubescent, dense on lateral parts of hind margin. Apex of fifth tergite before smooth hind margin with a few long stiff hairs, also sixth segment with long stiff hairs. Base of second sternite with dense pale pubescence, on disk and on hind margins of following sternites a few long stiff hairs.

Length about 11.5 mm.

Male unknown.

Malagasy: 1 ♀ (holotype), "Madagascar, Rogez, II.44" (FAG).

This is the second species of *Psen* known from Malagasy. It is easily distinguished from *P. madecassus* Arnold, which is smaller, more reddish, and much more finely, very sparsely, punctate, especially on front, vertex, scutum and sides of thorax.

P. leclercqi is very similar to *P. silvaticus* Arnold from Rhodesia but it differs not only in the reddish anterior corners of the scutum, but especially in the sculpture of the propodeum. In *P. silvaticus* the enclosed area is hardly distinguishable, with irregular reticulate carination; back-side of propodeum very finely reticulato-carinate. In *P. leclercqi* the propodeal enclosure is well-defined, lateral parts of enclosure shining, with oblique distinct carinae, median part with coarse irregular sculpture, back of propodeum coarsely irregularly reticulato-carinate.

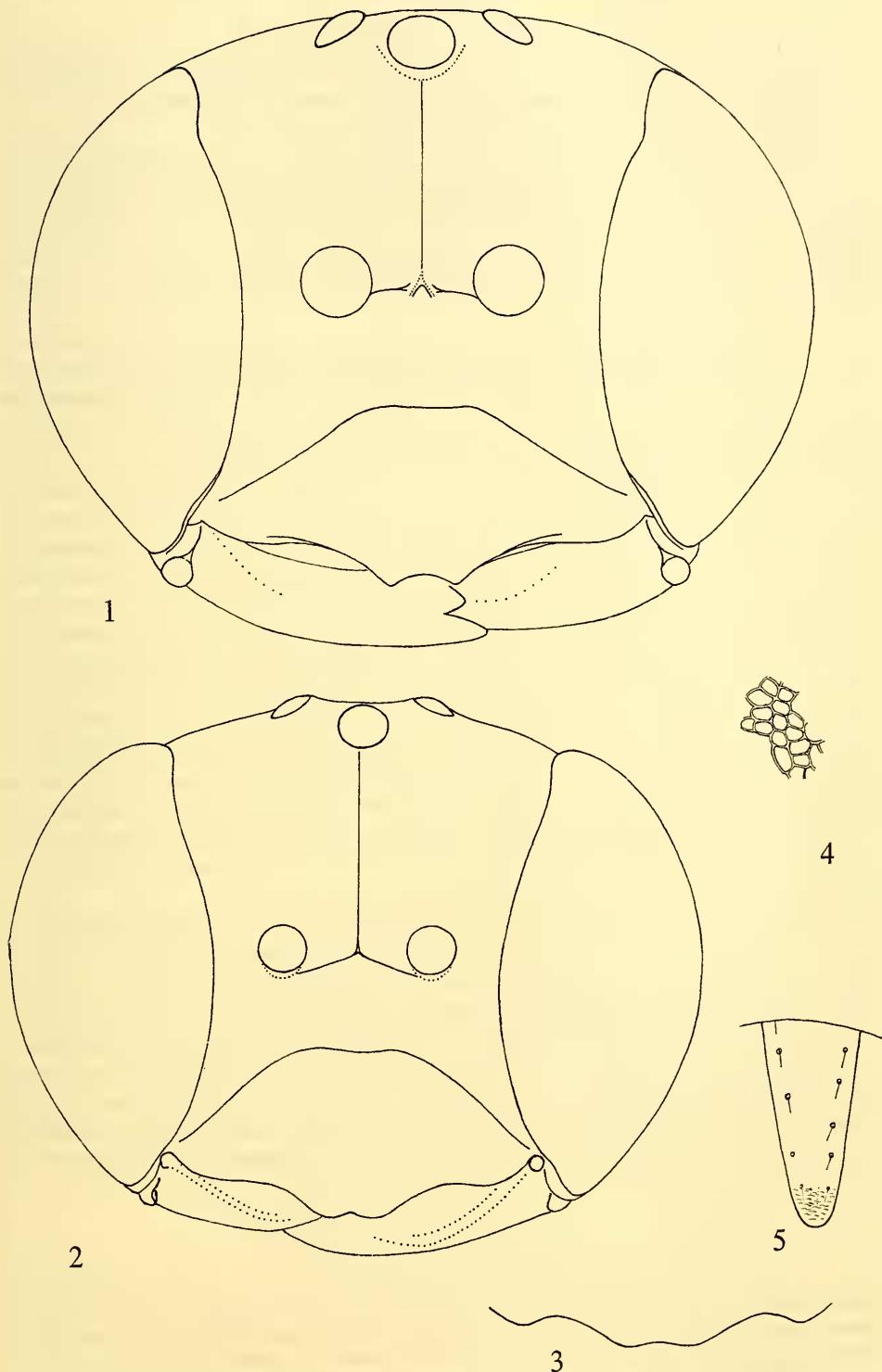


Fig. 1. *Psen (Psen) silvaticus* Arnold, ♀. Face. Fig. 2—5. *Psen (Psen) leclercqi* sp. nov., ♀, holotype. 2, face; 3, clypeal margin; 4, punctuation median part of scutum; 5, pygidial area

Psen (subgenus?) madecassus Arnold

Arnold, 1945: 152—153, ♀ and ♂ (*Psen madecassus*; Malagasy: Bekily, Ranomafana, Ivondro). Leclercq, 1961a: 15, ♀ and ♂ (*Psen (Psen) madecassus*; Malagasy: Bekily, Rogez). Leclercq, 1961c: 117, ♀ (Malagasy: Mandraka).

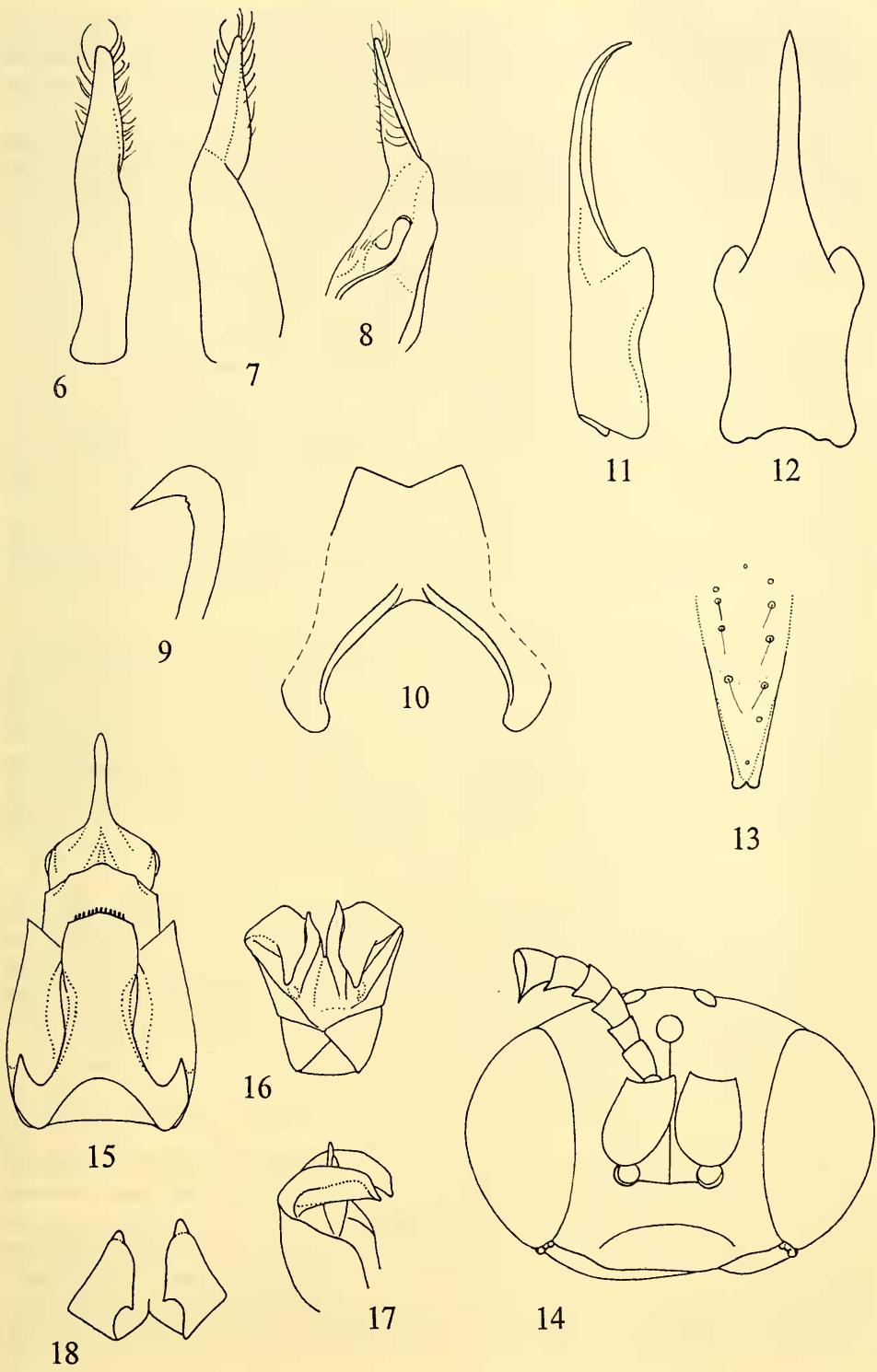
Material studied: Malagasy: 1 ♀, paratype and 1 ♂, paratype, both labelled "in cop. B.", Bekily, Febr., 1937, coll. A. Seyrig, 2 ♂, Bekily, Jan., 1937, coll. A. Seyrig, 1 ♀, Perinet, "Forêt côte est", Febr., 1939, coll. A. Seyrig (RM); 1 ♀, Bekily, Jan., 1942 (BM); 1 ♂, Bekily, Jan., 1937, coll. A. Seyrig (author's collection); 1 ♂, Rogez, June, 1944, coll. A. Seyrig (MRAC); 1 ♀, Madagascar Est, Mandraka (Tamatave), 4 April, 1958, coll. F. Keiser (NMB).

The excellent description by Arnold may be supplemented with the following characters. — Frontal carina fine, reaching anterior ocellus, slightly widening at lower end and ending in a low small tubercle. Lateral parts of frons with large low tubercle. In both sexes occipital carina narrow and high, especially lower part, ending normally in hypostomal carina. Apical margin of clypeus thick, slightly emarginate.

Scutum coarsely punctate, interstices as large as, sometimes larger than punctures. Mesopleura not closely and finely punctate, as stated by Arnold, but finely and sparsely, including hypo-epimeral area, interstices many times larger than punctures. Mesosternum depressed and smooth behind interepicnemial area, with high median longitudinal carina, anteriorly defined by a distinct short acetabular carina. Metasternum deeply emarginate. Petiole dorsally smooth, latero-dorsally with shallow narrow groove, sides of petiole with distinct groove, also ventro-laterally a distinct longitudinal groove; in all these grooves a row of fine punctures, each with a long erect fine hair. Hind coxae with sharp inner longitudinal carinae. Upper third of hind femora smooth, medially a broad, densely finely punctate and pubescent, longitudinal line, lower part of femora sparsely longer pubescent. Pygidial area of female (Fig. 13) elongate-triangular, apex emarginate, lateral carinae high. Antennae of male without distinct tylloidea. No fasciculate hairs on apical margins of third and fourth gastral sternites, but margins of second and following sternites with fine pale, obliquely inwards directed, long erect hairs. Genitalia of male: Fig. 6, 7, 8, 9. Seventh sternite: Fig. 10. Eighth sternite: Fig. 11, 12.

P. madecassus does not belong to the subgenus *Psen* because of the somewhat different shape of the sternum, the fine, punctate, latero-dorsal sutures of the petiole and the absence of fasciculate hairs on the apical margins of the third and fourth gastral sternites of the male. Probably it should best be placed into the subgenus *Punctipsen*, of which representatives are known from the Palaearctic region, Ryukyu Islands, Formosa and S India. The characters they have in common are the punctuation of the petiole, the almost vertical foreside of the first tergite, the continued longitudinal rugae on the back of the propodeum, behind the enclosed area, the thick apical margin of the clypeus, the absence of fasciculate hairs on the sternites of the male and to some extent also the shape of the male genitalia.

Fig. 6—12. *Psen madecassus* Arnold, ♂. 6, outer valve of genitalia, dorsal aspect; 7, the same, lateral aspect; 8, the same, inner aspect, with volsella; 9, right penis valve, outer side; 10, 7th sternite, ventral aspect; 11—12, 8th sternite, lateral and ventral aspect. Fig. 13. *Psen madecassus* Arnold, ♀, pygidial area. Fig. 14—18. *Psen patellatus* Arnold, ♂, paratype. 14, face; 15, 6th, 7th and 8th sternites, ventral aspect; 16—18, genitalia, ventral, lateral and posterior aspect



P. madecassus differs from the earlier described species belonging to *Punctipsen* in the reduced punctuation of the dorsal side of the petiole and in having no tooth on mandibles or mid basitarsi of the males, but I think that these characters do not have any subgeneric value.

The hind coxae have a sharp inner carina as in the subgenus *Pseneo*, but there is no oval patch on the posterior apex of the hind femora, the clypeus is bidentate and the petiole has latero-dorsal grooves with fine punctures and long erect lateral and ventral hairs.

Arnold (1945) records one specimen with prey, a small adult Cercopid.

Psen (subgenus?) patellatus Arnold

Arnold, 1924: 39—40, ♂ (*Psen patellatus*; SW Africa: Onoolonga and Mafa).

Leclercq, 1961a: 15 (*Psen (Psen) patellatus*).

Material studied: South-West Africa: 1 ♂ (holotype), Mafa, Febr., 1923, 1 ♂, Onoolonga, Febr., 1923, det. Arnold (SAM); 1 ♂, Onoolonga, Febr., 1923, with green paratype label (RM).

Dr. Hesse of the South African Museum informed me that there are two more males in his collection, respectively one from Mafa and one from Onoolonga. Arnold (1924) recorded in total three males from Onoolonga and Mafa, he did not mention which was the holotype.

Little can be added to the detailed original description. — Face broad (Fig. 14), hypostomal carina ending normally in occipital carina. Mandibles unidentate at apex. Sternum very densely punctate, no acetabular carina, lateral epicnemial carinae not curved backwards as in subgenus *Psen*. Petiole short, not only dorsally, but also laterally with irregular longitudinal carinae; similar carinae on ventral side which are converging backwards; ventral plate with fine longitudinal rugae. Fourth and fifth gastral sternites without fasciculate hairs. Sternites 6—8: Fig. 15, ventral aspect. Apical spine short. Genitalia short, base and apex dark brown, median part and penis valves testaceous (Fig. 16, 17 and 18).

Arnold already doubted whether this species belongs to the subgenus *Psen*. The structure of the epicnemial areas and of the petiole, the depressed posterior side of the propodeum, the absence of fasciculate hairs on the apical margins of the fourth and fifth sternites, and the short genitalia make it very unlikely that *P. patellatus* should be placed in the subgenus *Psen*. As it does not fit in any of the other subgenera, perhaps a new subgenus has to be erected to receive this species.

Psen (Mimesa) empeyi spec. nov.

Male. — Head and thorax black; anterior margin of lower part of pronotum somewhat thicker and yellowish-white; apices of mandibles reddish, palpi very dark brown, antennal segments 5—12 below, last two segments completely, orange-reddish, segments 5—11 brownish dorsally. Tarsi brownish, tibial spurs of hind legs whitish. Veins of wings brown, base of veins and base of stigmata of fore wings paler brown. Petiole black, ventral plate red, also first tergite and base of second tergite, following tergites black.

No distinct frontal carina, small low tubercle between antennae. Frons and vertex densely punctate, interstices on vertex larger, at least as wide as diameter of punctures,

shining. Temples rather densely punctate, surface with fine striae. Underside of head shining, occipital carina distinctly ending in hypostomal carina. Face below antennae, including clypeus, dull, finely very densely punctate, protruding median part of clypeus with small triangular emargination and slight depression (Fig. 19). Mandibles narrow. Third antennal segment nearly three times, fourth segment about twice, fifth segment about one and a half times, segments 6—8 about one and a quarter times as long as broad at apex, segments 9—12 about as long as broad at apex, last segment about one and three-quarter times as long as wide at base. Intercellar area almost impunctate, distance between posterior ocelli longer than distance between ocelli and oculi.

Sides of pronotum converging roundly backwards (Fig. 20). Scutum shining, densely punctate, interstices mostly larger than diameter of punctures, prescutal sutures indistinct, scutellum punctate as scutum, posteriorly somewhat longitudinally striate. Metanotum dull, with coarse and very close reticulate carination. Propodeum also dull, with coarser reticulate carination, coarsest on lower half. Propodeal enclosure ill-defined, propodeal longitudinal groove deep, coarsely reticulato-carinate. Sides of propodeum dull, finely closely reticulato-carinate, more striate on anterior half. Upper part of metapleura dull, lower part almost shining. Mesopleura, anterior plate of mesepisternum, greater part of epicnemial areas and mesosternum densely punctate, with narrow shining interstices; hypo-epimeral area dull, finely closely reticulato-carinate or coarsely coriaceous, epimeral suture ill-defined. First recurrent vein of fore wings interstitial, second recurrent vein ending near end of second submarginal cell. Legs slender. Petiole about one and a half times as long as first tergite, thin, cylindrical, slightly widened at base and apex, with small pit dorsally at apex. Gaster slender, finely alutaceous, last tergite dorsally flattened, broad-triangular with rounded apex (Fig. 21, 22), densely punctate with short appressed hairs.

Sixth sternite dentate apically (Fig. 23). Seventh sternite whitish transparent, tip dark brown with triangular emargination (Fig. 24). Eighth sternite whitish transparent, apical margin dark brown, spine short and dark brown (Fig. 25, 26). Genitalia dark brown: Fig. 27, 28.

Pubescence silvery-whitish, dense and appressed below antennae.

Length about 6.5 mm.

Female unknown.

South Africa: 3 ♂ (holotype and paratypes), Ellisras, N. Transvaal, 19 June, 1962, 1 ♂ (paratype), 22 June, 1963, coll. H. N. Empey (holotype deposited by Mr. Empey in the Transvaal Museum, paratypes EC, PMFV and in the author's collection).

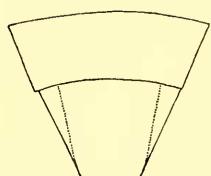
P. empeji is the first known Ethiopian species of the subgenus *Mimesa*, a subgenus well represented in the arctic and Mediterranean regions. It is distinguished by the remarkable female-like pygidial area which resembles that of the Nearctic *Psen* (*Mimesa*) *pygidialis* Malloch (1933).

***Psenulus turneri* Arnold**

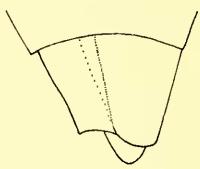
Arnold, 1927: 121, ♀ (South Africa: Cape Province).

Leclercq, 1961a: 26.

Supplementary description of female. — Outer half of mandibles reddish. Fourth tergite varying from completely reddish to basally or almost completely black. All of the eleven females from Grahamstown and Kenton-on-Sea, mentioned below, have darker



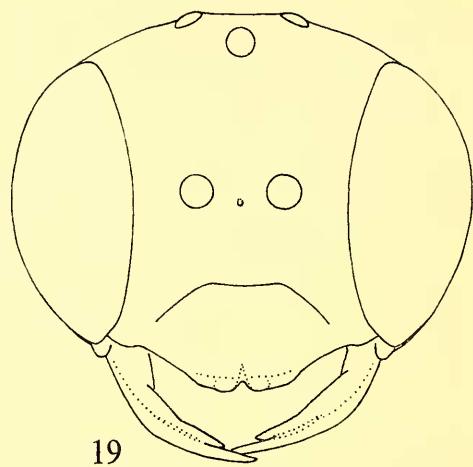
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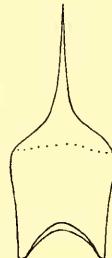
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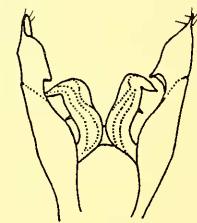
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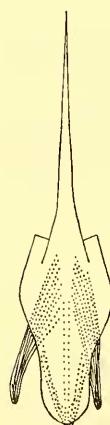
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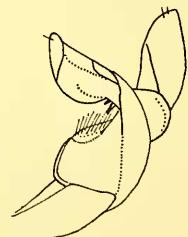
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legs than the holotype, the hind legs are completely black. The holotype has a completely black fourth tergite and all legs are reddish.

Frontal carina raised and much broadened between antennae, connected with high transverse carina below antennae by two closely parallel or confluent carinae. Prescutal sutures long, on anterior three quarters of scutum with short transverse carinae (alveoles). Petiole cylindrical, little longer than first tergite in dorsal aspect. No distinct pygidial area. One of the six females from Howison's Poort, Grahamstown, has a triangular, instead of petiolate, second submarginal cell, in both wings.

Apical margin of fourth and fifth gastral sternites with dense fringe of long whitish hairs.

First description of male. — Resembling female. Mandibles almost completely reddish. Basal half of fourth tergite black in all three specimens. Hind legs partly brownish. Antennal segments 3—13 brown above; scape, second segment and underside of flagellum reddish.

Antennae moniliform, segments 3—8 about one and a half times, segments 9—12 about one and a third times as long as broad at apex, last segment about one and three quarters times as long as broad at base, segments 4—8 with small narrow tyloidea, segments 9—10 with indistinct tyloidea. Petiole of second submarginal cell shorter than in female. Back of propodeum coarsely reticulate, more or less striate behind enclosed area. Petiole slightly shorter than in female, below with distinct lateral keel. No conspicuous fringes on apical margins of fourth and fifth gastral sternites.

Apex of seventh sternite with triangular emargination (Fig. 31) and fringe of long fine hairs. Eighth sternite: Fig. 29, 30. Genital apparatus (Fig. 32, 33) short, broad, pale yellowish-brown, stipes broad and rounded at apex.

The holotype is a female from South Africa, Cape Province, Mossel Bay, 18—30 Nov., 1921, coll. R. E. Turner (BM).

New records from South Africa, Cape Province: 6 ♀, Howison's Poort, Grahamstown, 19—30 Nov. and 14—20 Dec., 1971, 2 ♀, Belmont Valley, Grahamstown, 28—31 Oct. and 5—9 Nov., 1971, all collected by F. W. Gess, 3 ♀, Kenton-on-Sea, 1—9 Nov., 1971, 26—31 Nov., 1971 and 1—14 March, 1972, coll. R. A. Jubb; 1 ♂, Howison's Poort, Grahamstown, 24—26 Nov., 1971, coll. F. W. Gess, 3 ♂, Kenton-on-Sea, 23—29 Oct., 1970, 14—21 Oct., 1971, 21—26 Oct., 1971, coll. R. A. Jubb, all collected in Malaise traps (AMG).

Leclercq (1961a) rightly assumed that *P. turneri* and *P. paulisae* Leclercq are very closely related, but they are still distinctly different.

Psenulus paulisae Leclercq

Leclercq, 1961a: 23—26, ♀ and ♂ (Zaire).

New records from Sierra Leone: 1 ♀, Njala, Dec., 1934, coll. E. Hargreaves, pres. by Com. Inst. Ent. B.M. 1973—1 (BM); Freetown, 4 ♀, March, May, July, 1967, 3 ♂, Febr., April, 1968, coll. D. F. Owen (HT).

Fig. 19—28. *Psen* (*Mimesa*) *empeyi* sp. nov., ♂, 19, holotype, 20—28, paratype. 19, face; 20, pronotum; 21—22, 7th segment, dorsal and latero-dorsal aspect; 23, apex 6th sternite, dorsal aspect; 24, 7th sternite, latero-ventral aspect; 25—26, 8th sternite, ventral and lateral aspect; 27, genitalia, dorsal aspect; 28, apex penis valve, lateral aspect. Fig. 29—33. *Psenulus turneri* Arnold, ♂. 29—30, 8th sternite, with part of musculature, ventral and lateral aspect; 31, 7th sternite, lateral aspect; 32—33, genitalia, right stipes bent, dorsal and lateral aspect

I have compared these specimens with a paratype (female) from the type-locality Paulis (FAG). In the females the transverse striae on the sides of the scutum are less distinct, but in one of the males they are distinct. Leclercq has given a very good and detailed description but I would like to mention the following additional characteristics.

Female. — Anterior oblique suture of mesopleura foveolate, widened upper part with transverse carinae. Stiff hairs of fringes on apical margins of fourth and fifth sternites about as long as fourth segment of posterior tarsus.

Supplementary description of male based on the males from Sierra Leone. — Antennal segments moniliform. Scape, second segment and underside of following segments yellowish-red, dorsal side of flagellum dark brown, third, 12th and 13th segment somewhat paler. Third antennal segment about one and a half times as long as broad at apex, length of segments then gradually decreasing, segments 11—12 about as long as broad at apex, last segment about one and a half times as long as broad at base. Segments 3—9 with distinct, narrow and oblique, pale tylodea, on tenth segment much smaller. Raised part of carina between antennae somewhat narrower than in female.

There is some variation in the colour of the gaster. One of the females from Sierra Leone, collected March, 1967, has also the first tergite completely reddish, and the apex of the ventral plate of the petiole. In one of the males from Sierra Leone not only the first tergite and at least the base of the second tergite are deep black, but the following tergites also are somewhat darkened on the sides. Apical margins of sternites 2—6 brownish. Also the sculpture of scutum and propodeum may vary somewhat.

Psenulus erusus Leclercq

Leclercq, 1961a: 26—27, ♀ (Zaire).

New records: Sierra Leone: Freetown, 1 ♀, July, 1967, 2 ♀, Jan., 1968, coll. D. F. Owen (HT).

These specimens are identical with the holotype from Zaire (Congo), Eala, Nov., 1936 (MRAC), but they are slightly smaller and the upper part of the back of the propodeum is less densely striate.

Length about 6.5 mm.

There are fringes of long hairs on the apical margins of the fourth and fifth sternites like in the other species belonging to the group of *P. turneri*.

Psenulus garambae Leclercq

Leclercq, 1961b: 57—58, ♀ (Zaire).

In the holotype the dilated raised part of the interantennal carina is wide, ratio width-length being about 1 : 2.5, carina ending below antennae in a distinct transverse carina. Tempora coarsely striato-reticulate. Petiole about one and one-third times as long as first gastral tergite.

Apical margins of fourth and fifth sternites with fringe of long, yellowish golden hairs.

Length about 6 mm.

Leclercq recorded this specimen from the National Park of Garamba, in wooded savanna surrounding the camp of Bagbele, 20 March, 1950, coll. H. de Saeger (MRAC). There are no further records. He has already recognized the close relationships of *P. garambae* with *P. saltitans* Arnold, as well as with *P. turneri*, *P. paulisae*, and *P. erusus*.

***Psenulus patei* Arnold**

Arnold, 1940: 132—133, ♀ (Rhodesia: Bulawayo and Khami).
Leclercq, 1961a: 29, ♀ (Rhodesia: Matopos).

Arnold based his description of this species on 6 females from Bulawayo and Khami. The holotype, which Mr. F. C. de Moor of the National Museum at Bulawayo kindly sent me on loan, is labelled: "Khami, S. Rhodesia, 30.10.1938, Nat. Museum S. Rhodesia" and also bears a red type-label of G. Arnold.

The remaining five females recorded by Arnold are undoubtedly included in the following material from the type localities: 2 ♀, Bulawayo "Kh" (= Khami?), 16 Sept., 1928, 1 ♀, Bulawayo, 25 Dec., 1929, 1 ♀, Khami Dam, 14 Sept., 1938, 2 ♀, Khami, 1 Nov., 1938, all collected by R. H. R. Stevenson (RM).

I could also study the female recorded by Leclercq (1961a) from Rhodesia: Matopos, 20 Nov., 1938, leg. et det. G. Arnold (BM).

New records from Rhodesia: 1 ♀, Murampara, 9 Sept., 1927, 1 ♀, Umgusa Valley, Bulawayo dist., 1 Febr., 1930, both coll. R. H. R. Stevenson (RM).

Supplementary description, based on holotype. — Mandibles dark reddish except blackish tips. Labrum dark reddish. Palpi pale brown. Fore legs yellowish-red, trochanters completely and base of femora below brown, basitarsi yellowish-white. Mid trochanters and femora brown, apex of mid femora yellowish-red below, base of mid tibiae yellowish, underside pale reddish-brown. Hind trochanters, femora and tibiae brownish-black, basal fourth of tibiae straw-yellow, base of hind basitarsi pale yellowish. Pronotal tubercles dark brown, tegulae yellowish-transparent. Veins of wings dark brown.

Frons below antennae with tendency to transverse striation. Vertex shining, very finely punctate. Labrum not distinctly tridentate. Antennae short, third segment about one and a half times as long as broad at apex, segments 4—6 little longer than broad, segments 7—11 shorter than broad at apex, last segment about one and a half times as long as broad at base.

Prescutal sutures almost reaching hind margin of scutum, indicated only by a row of irregular short transverse grooves. No pygidial area. Apical margins of fourth and fifth sternites with fringes of long yellowish-golden hairs, sixth sternite densely yellowish-golden pubescent. Epicnemial areas below with patch of dense short whitish pubescence.

The female from Umgusa Valley has darker mandibles, reddish fore tarsi, light brown mid tibiae, straw-yellowish mid basitarsi, rest of mid tarsi pale reddish, brownish-black hind legs and yellowish-brown base of hind tibiae.

P. patei is recognized by the triangular (rarely slightly open) second submarginal cell of the fore wings, striate upper part of propodeum and reddish tergites 4—6. It is closely related to *P. saltitans* Arnold, which also belongs to the group of *P. turneri* Arnold but *P. saltitans* has no distinct pale base of hind tibiae.

According to Arnold (1940) this species was found nesting in a decayed tree trunk.

***Psenulus saltitans* Arnold**

Arnold, 1958: 135, ♀ (Rhodesia).
Leclercq, 1961a: 29.

Material studied: 1 ♀, "Cashel, S. Rhodesia", 30 Dec., 1947, with green paratype-label (RM).

Supplementary description. — Middle part of mandibles dark reddish. Fore trochanters

and at least outer side of fore femora brown, not reddish-brown. Mid basitarsi straw-yellow. Veins of wings brown.

Frons shining, oblique rugae superficial. Antennae short, third segment about one and one-quarter times as long as broad at apex, segments 4—6 little longer than broad, segments 7—11 wider than long, last segment about one and three-quarter times as long as broad at base. Interantennal carina raised and broadened between antennae, lateral edges of widened part converging below and ending as two very close parallel carinae in the transverse carina below antennae. Transverse carina more angular than figured by Arnold (1958: 134). Lower half of clypeus shining, impunctate.

Prescutal sutures as in *P. patei* Arnold. Anterior oblique suture foveolate, widened upper part with transverse carinae reaching upper anterior corner of episternal area. No pygidial area. Petiole about one and a half times as long as first tergite in dorsal aspect, cylindrical, base flattened dorsally.

Petiole dorsally with lateral row of very short hairs, ventro-laterally a few long outstanding hairs. Apical margins of fourth and fifth sternites with fringe of long yellowish-golden hairs, sixth sternite yellowish-golden pubescent.

P. saltitans belongs to the group of *P. turneri* Arnold, but differs from latter species in the non-petiolate but triangular second submarginal cell of the fore wings. It differs from *P. patei* in the dark bases of mid and hind tibiae.

According to Arnold this species was caught "jumping about on the leaves of a shrub, probably in search of aphids".

Psenulus ealae Leclercq

Leclercq, 1961a: 27—29, ♀ (Zaire).

New records: Sierra Leone: Freetown, 1 ♀, May, 1967, 1 ♂, April, 1968, coll. D. F. Owen (HT).

A series of seven females is known from Eala; through the kind intermediary of Prof. J. Leclercq I could study three paratypes (FAG).

Supplementary description of female based on these paratypes. — All legs brown, apex of fore femora, fore tibiae, and underside of mid tibiae more yellowish-brown, base of hind tibiae yellowish-grey. Veins of fore wings dark brown.

Transverse carina below antennae not long, reversed-V-shaped with an angle of about 100 degrees. Foreside of pronotum with transverse striae. Anterior oblique suture broad, foveolate, widened upper part with transverse carinae. Base of second sternite with semi-circular depression. No pygidial area. Apical margins of fourth and fifth sternites with fringe of long yellowish-golden hairs.

Length about 6.5 mm.

First description of male (Sierra Leone). — Resembling female. Base of fourth tergite also brown. Raised and broadened part of interantennal carina narrower, ratio width-length about 1 : 4. Antennal segments convex below, third segment about one and three-quarter times, segments 4—12 about one and a half times as long as broad at apex, last segment nearly two and a half times as long as broad at base. Segments 4—10 behind with distinct narrow oblique tyloidea, on segments 5—6 about half as long as segment, all reddish like underside of flagellum, on segments 3 and 11 at most a small point.

Second submarginal cell of fore wings sessile, but its upper width shorter than in

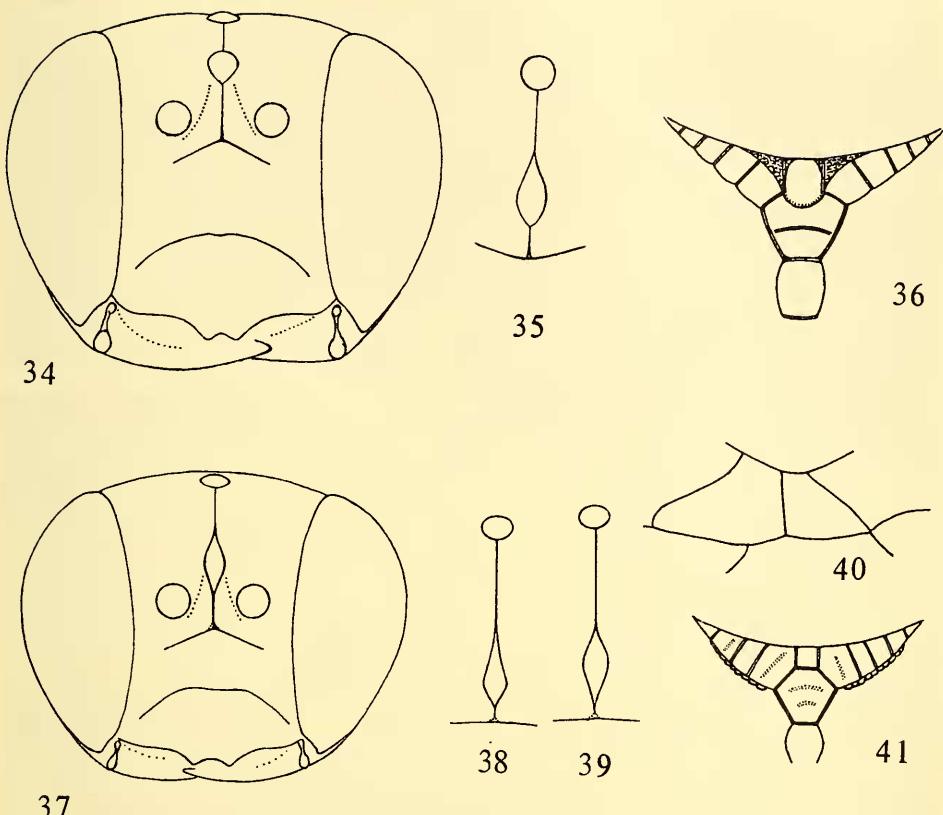


Fig. 34—36. *Psenulus aurifasciatus* sp. nov., ♀, holotype. 34, face; 35, frontal (interantennal) carina, dorsal aspect; 36, propodeal enclosure. Fig. 37—41. *Psenulus freetownensis* sp. nov., ♀, holotype. 37, face; 38, frontal carina, dorsal aspect (39, the same, paratype); 40, 2nd and 3rd submarginal cell of left fore wing; 41, propodeal enclosure

female. Petiole about one and a half times as long as first tergite. This is much longer than in the female, in which the petiole is about equal in length. However, this may be a sexual difference.

The female from Sierra Leone is somewhat smaller than the paratypes from Eala, the scutum is slightly less strongly sculptured and the fore femora are more reddish.

P. ealae is closely related to *P. turneri* Arnold, but is distinguished easily by the open second submarginal cell.

Psenulus aurifasciatus spec. nov.

Female. — Head and thorax black; mandibles partly brownish, palpi yellowish-brown. Underside of antennae reddish-brown. Apex of fore femora, fore tibiae completely and tarsi reddish; back-side of mid tibiae and tarsi reddish, rest of mid legs and hind legs completely black or very dark brown. Gaster black, apical margins of tergites 2—5 brownish transparent laterally; last tergite, greater part of fifth and whole of sixth sternite brown. Veins of wings dark brown, tegulae reddish-brown.

Frontal carina (Fig. 35) raised and broadened between antennae, ratio width-length about 1 : 2.5, lower narrow part of carina about as long as broadened part and ending below in a transverse carina, its length about half the distance between the eyes, obtusely angular in the middle (Fig. 34). Basal half of clypeus dull, apical half shining, median part much protruding with low triangular emargination, forming two triangular teeth. Mandibles normal. Occipital carina ending in hypostomal carina. Frons near oculi with large convex, shining and very finely punctate areas, below anterior ocellus on both sides of carina very densely finely punctate. Vertex shining, very finely punctate, punctures between ocelli coarser. Tempora with coarse, striato-reticulate longitudinal carination, especially along the eyes. Antennae short, third segment about one and a half times, segments 4—5 about one and one-third times as long as broad at apex, segments 6—10 almost square, 11th segment about one and one-quarter times as long as broad at apex, last segment about twice as long as broad at base.

Pronotal corners rounded, foreside above with fine longitudinal striation. Scutum shining, finely punctate, prescutal sutures linear on anterior fourth, on posterior part until near hind margin of scutum indicated by a line of punctures larger than those on rest of scutum. Scutellum and metanotum very finely punctate, interspaces a few times as large as punctures. Lateral parts of propodeal enclosure medially separated from metanotum by two triangular, dull areas; median part broad, almost heart-shaped and connected with anterior margin by a small separate area (Fig. 36). Back of propodeum shining, dorsally with superficial oblique striae, followed by a more coarsely and somewhat irregularly striate area, lower third with fine irregular reticulation and a few stronger carinae. Median longitudinal groove broad. Posterior half of sides of propodeum reticulate, separated from back-side by a broad, dorsolateral, irregularly foveolate groove; anterior part of sides dull. Metapleura dull over greater part. Mesopleura and mesosternum shining, distinctly punctate, interstices mostly larger than punctures, punctures very fine on hypo-epimeral area, a foveolate groove along metapleura. Anterior oblique suture broad and foveolate, widened upper part with transverse carinae. Legs normal, stoutly built, a row of four small teeth on apical two-fifths of mid tibiae, hind tibiae with two very small thorns on apical half. Second submarginal cell of fore wings sessile, upper side about one-fifth of length of lower side, first recurrent vein ending in second submarginal cell. Petiole about one and one-quarter times as long as first tergite, cylindrical, base above distinctly, and sides only slightly, flattened, apex above with a small pit. Gaster very finely punctate. No pygidial area. Second sternite at base with a rounded-triangular depression.

Face with appressed silvery pubescence, sparse on anterior third; also with long whitish hairs. Head, thorax and legs whitish pubescent, more yellowish-grey and longer on vertex, dense and somewhat yellowish-grey on lower part of epicnemial areas and on mesosternum. Gaster with yellowish-brown pubescence. Pygidium with many long stiff hairs, apical margins of fourth and fifth gastral sternites with fringe of long, yellowish-golden hairs.

Length 8 mm.

Male unknown.

Sierra Leone: 1 ♀ (holotype), Freetown, April, 1967, coll. D. F. Owen (HT).

This species belongs to the group of *P. turneri* and is easily distinguished by its dark gaster.

Psenulus freetownensis spec. nov.

Female. — Head and thorax black; mandibles reddish, palpi testaceous. Scape of antennae and underside of flagellum yellowish-brown, flagellum above dark-brown. Pronotal tubercles and tegulae yellowish-brown. Veins of wings dark-brown. Legs including trochanters reddish, fore and mid legs slightly paler than hind legs. Petiole, except ventral plate, black, following segments of gaster reddish.

Frontal carina (Fig. 38, 39) raised and widened between antennae, length of widened part about 3.5 times width, carina ending below antennae in transverse carina, which has the shape of a reversed V with an angle of about 120 degrees (Fig. 37). Clypeus very finely and densely punctate, lower margin less densely punctate and more shining; protruding median part with two distinct small teeth, distance between apices of teeth about one sixth of total distance there between eyes. Frons and vertex shining, distinctly punctate. Tempora with coarse reticulato-striate sculpture behind eyes. Occipital carina ending normally in hypostomal carina. Mandibles normal. Third antennal segment at least one and a half times, segments 4—5 about one and a third times as long as broad at apex, segments 6—7 slightly longer than broad, segments 8—11 about as long as broad at apex, last segment about one and three quarters times as long as broad at base.

Lateral corners of pronotum obtuse. Scutum densely finely punctate, prescutal sutures not sharp, almost reaching hind margin, parapsidal sutures distinct. Scutellum and metanotum very finely and densely punctate. Propodeal enclosure triangular, central part broad, separated from metanotum by a small square area (Fig. 41), lateral areas with at least three oblique carinae. Median longitudinal groove broad, oval, with narrow deeper groove. Upper half of back of propodeum smooth and shining, lower half with fine reticulate carination. Posterior half of sides of propodeum with reticulate carination, anterior half opaque, propodeum postero-laterally with a broad foveolate groove. Metapleura opaque, somewhat coriaceous, mesopleura and mesosternum shining, very finely punctate. Anterior oblique suture broad, foveolate, broadened upper part with transverse carinae. Upper side of second submarginal cell about one third length of lower side of cell, first recurrent vein ending just in second submarginal cell, second recurrent vein ending well in third submarginal cell (Fig. 40). Legs normal, mid tibiae at apex behind with 3—5 short reddish thorns, on back of hind tibiae in the middle two or three short reddish thorns.

Petiole about two-thirds of length of first tergite (in dorsal view), almost cylindrical, base flattened and with lateral carina, apex with small pit. Gaster very finely punctate. No pygidial area. Second sternite at base with semi-circular depression.

Face with silvery appressed pubescence and also with long erect silvery hairs. Pubescence of head and thorax whitish, epicnemial areas below with round patch of dense appressed pubescence. Petiole with long lateral hairs and dorsally with two backwardly convergent rows of very short hairs. Pubescence of legs and gaster yellowish-golden, apical margins of fourth and fifth sternites with fringe of long, yellowish-golden hairs, sixth sternite with short dense yellowish-golden pubescence.

Length about 6.5—7 mm.

Male. — As female, but underside of antennae paler, transverse carina below antennae longer and less angular in frontal aspect, segments 3—12 about one and a half times as long as broad at apex, last segment about two and a half times as long as broad at base, underside of segments convex, segments 4—8 on back with indistinct, oblique, reddish

tyloidea. Circular patches of appressed pubescence at lower side of epicnemial areas less conspicuous and sternites 4—5 without fringes of long hairs. Upper, horizontal part of propodeum smooth and shining, back and sides of propodeum more coarsely sculptured than in female. Petiole on apical half below with distinct ridge, sides of petiole slightly depressed.

Length about 5.5 mm.

Sierra Leone: Freetown, 1 ♀ (holotype), Aug., 1967, 1 ♂ (allotype), July, 1967, 1 ♂ (paratype), Jan., 1968, all collected by D. F. Owen (HT, paratype in author's collection).

Equatorial Guinea (Spanish Guinea): 1 ♀ (paratype), "Uelleburg", June—Aug., 1908, coll. Tessmann (ZMB).

In the allotype the second submarginal cell of the left wing is almost triangular. On the contrary this cell is more open above in the male paratype than in the holotype.

The petiole of the female from Equatorial Guinea is brownish, its apex reddish dorsally. The interantennal carina is slightly broader and the upper side of the second submarginal cell is about one fourth of the length of the lower side.

P. freetownensis is in both sexes easily recognized by the completely red gaster and legs, and the broad smooth upper part of the propodeum behind the enclosed area. It evidently belongs to the group of *P. turneri*, of which some species normally have triangular or even petiolate second submarginal cells.

Psenulus alveolatus spec. nov.

Male. — Head and thorax black; antennae brown, underside and scape completely reddish-brown. Palpi pale brown. Tegulae dark reddish-brown. Labium and apical half of mandibles reddish-brown. Fore legs including trochanters reddish-brown, mid and hind legs brown. Tibial spurs of mid and hind legs yellowish-white. Petiole including ventral plate deep black, also first tergite and basal two-thirds of second tergite, rest of dorsal side of gaster reddish; sternites 2—4 very dark brown, nearly black, following sternites reddish; apical spine dark reddish. Veins of wings dark brown.

Frontal carina raised and much broadened between antennae, ending below antennae in high transverse carina. Clypeal margin medially with two low triangular teeth. Frons with coarse oblique rugae, interocellar area with transverse rugae, vertex more shining, striato-punctate, striae weak. Tempora coarsely striato-reticulate with a few strong longitudinal carinae. Occipital carina ending in hypostomal carina, high, alveolate along fore-side. Antennal segments 3—8 about one and a half times, segments 9—12, about one and a quarter times width at apex, last segment one and three quarters times width at base; third segment with small tyloidea, segments 4—8 with longer and distinct, narrow tyloidea.

Anterior margin of pronotum alveolate; scutum shining, with irregular rather dense punctuation, and centrally with weak transverse rugae; prescutal sutures with deep and large alveoles and strong transverse rugae, reaching posterior margin which shows many short longitudinal rugae; parapsidal sutures distinct; lateral margins of scutum alveolate. Scutellum shining, sparsely finely punctate. Metanotum somewhat more densely punctate. Enclosed area of propodeum shining, with rather short oblique carina on lateral parts, wide central area; back coarsely reticulate, median longitudinal carina deep and wide but irregular. Sides of propodeum less coarsely reticulate. Metapleura smooth. Mesopleura

and mesosternum shining, densely coarsely punctate, partly somewhat rugose. Anterior plate of mesepisternum shining, less densely punctate, not rugose. Anterior oblique suture broad, foveolate, widened upper part with transverse carinae.

Legs slender. Second submarginal cell distinctly petiolate, first recurrent vein ending in second submarginal cell, second recurrent vein ending well in third submarginal cell. Petiole long, nearly twice length first tergite; sides slightly depressed, with distinct lower keel, dorsally convex, but base and apex somewhat flattened, narrow triangular pit at apex.

Face with appressed silvery pubescence and erect longer hairs, rest of head, and thorax, with whitish hairs, gaster yellowish-grey pubescent, apical margins of sternites with thin fringe of short, backwards directed stiff hairs, disk of sixth sternite with dense, backwards directed, golden pubescence.

Length about 7 mm.

Female unknown.

Rhodesia: 1 ♂ (holotype), Bulawayo, 25 Dec., 1929, coll. R. H. R. Stevenson (RM).

P. alveolatus is certainly closely related to *P. turneri* Arnold, differing however by having a longer petiole, a more coarsely sculptured scutum, and by the fact that more gastral segments are reddish.

A male from Angola (A30), 7 miles W. of Gabela, 16—18 March, 1972, Southern African Exp. B.M. 1972—1 (BM) is very similar and certainly belongs to the group of *P. turneri*. It has also a long petiole and tergites 2—6 are completely reddish, but it differs from *alveolatus* in being somewhat smaller, with the scutum less coarsely sculptured and the second submarginal cell being open dorsally. As the antennae are missing I prefer to wait for additional material before describing this form as a new species.

***Psenulus fulgidus* Arnold**

Arnold, 1945: 156—157, ♀ and ♂ (Malagasy: Bekily, Behara and Ranomafana).
Leclercq, 1961a: 35, ♀ (Malagasy: Fort-Dauphin).

Material studied: 2 ♀, Bekily, Dec., 1932, Febr., 1940, 1 ♂, Bekily, May, 1934, (FAG); 1 ♀, Bekily, March, 1937, coll. A. Seyrig, det. Arnold (?) (author's collection).

The material from the collections of the Faculty of Agricultural Sciences at Gembloux was kindly sent to me by Prof. J. Leclercq; it forms part of the material collected by Seyrig and was mounted after Arnold's study (1945) and identified by Leclercq (1960).

P. fulgidus and *P. reticulosus* Arnold are much alike as regards their colour patterns, but they differ in a few important characteristics. *P. fulgidus* is smaller (female 6.3—8.5 mm, male 6—6.5 mm, cf. Arnold, 1945, who based his description on 16 females and 9 males). In the female of *P. fulgidus* the broadened raised part of the interantennal carina is lozenge-shaped, petiole about one and one-third times as long as first tergite, apex of petiole about twice as wide as base, pygidial area with distinct lateral carinae, parallel on apical half, gradually diverging towards base. I have seen one male, recorded above, from Bekily (det. J. Leclercq). This differs from the male of *P. reticulosus*, apart from being smaller, in having no tyloidea. Raised part of interantennal carina hardly broadened. Arnold described the punctuation of the scutum as being denser than in the female, inter-spaces between larger punctures about twice as wide as punctures themselves and some specimens with a trace of transverse rugosity. He did not mention the interantennal carina.

The above male has a strongly transversely rugose scutum, apical margin of scutellum yellow, remaining part brown and yellowish-brown. Petiole about one and a half times as long as first tergite.

Psenulus reticulosus Arnold

Arnold, 1945: 154—156, ♀ and ♂ (*Psenulus reticulosus* and *Psenulus reticulosus* var. *alboscutellatus*; Malagasy: Rogez, Perinet, Ivondro, Ranomafana).

Leclercq, 1961a: 35, ♀ (Malagasy: Mandraka, Rogez, Analandraraka).

Leclercq, 1961c: 117, ♀ (Malagasy: Ranomafana, Perinet, Joffre-ville).

Material studied: Rogez, 1 ♀, Jan., 1931, 1 ♀, 1932, 1 ♂, April, 1931 (FAG); 1 ♀, Rogez, "forêt côte est", Febr., 1934, coll. A. Seyrig (author's collection); Rogez, 1 ♀, Dec., 1931, 1 ♀, 1932, 1 ♂, May, 1932 (FAG). The last mentioned three specimens belong to the var. *alboscutellatus* Arnold.

Petiole over one and a half times as long as first tergite, in dorsal aspect. Prescutal sutures distinct only on basal third of scutum. Raised part of interantennal carina slightly broadened in female, hardly or not broadened in male.

Pygidial area of female narrow with indistinct, parallel, carinae.

Underside of fore and mid femora pale brown in male, in female fore and mid legs completely pale yellow. Antennal segments 3 (or 4)—13 with distinct tylodea, which are reddish like flagellum.

Psenulus sapobaensis spec. nov.

Female. — Head and thorax black; mandibles yellowish with brown tips, labrum reddish-brown, palpi testaceous. Scape of antennae yellowish, following segments dark brown above, last segment reddish-brown above, underside of antennae yellowish-red. Pronotal dorsum medially, and metanotum, blackish-brown. Posterior part of pronotal tubercles yellowish, tegulae yellowish-red. Fore and mid legs including trochanters and mid coxae pale yellowish-red or straw-yellow; hind legs including coxae darker yellowish-red. Veins of wings dark brown. Gaster including petiole yellowish-red.

Frontal carina distinct, raised part between antennae very slightly broadened (Fig. 43), ending below antennae in a distinct transverse carina. Supraclypeal area and basal half of clypeus superficially densely punctate, apical half of clypeal disk not very shining but without distinct sculpture or punctuation. Protruding median part of clypeal margin distinctly bidentate, distance between apices of teeth about one-ninth of total distance there between the eyes (Fig. 42). Frons below anterior ocellus with distinct separate punctures, near oculi almost smooth. Vertex shining, sparsely and minutely punctate. Tempora with fine longitudinal striae. Occipital carina ending normally in hypostomal carina. Mandibles normal. Third antennal segment about two and one-third times, fourth segment about twice, fifth segment about one and three-quarter times, segments 6—8 about one and a half times, segments 9—11 about one and one-third times as long as broad at apex, last segment at least twice as long as broad at base (all in frontal view).

Pronotal corners sharp. Scutum fairly strongly punctate, finer on anterior part between prescutal sutures. Prescutal sutures distinct on anterior two-fifths of scutum, continued until near apical margin by a row of relatively large punctures. Scutellum and metanotum scarcely finely punctate. Propodeal enclosure triangular, well-defined, median part rather

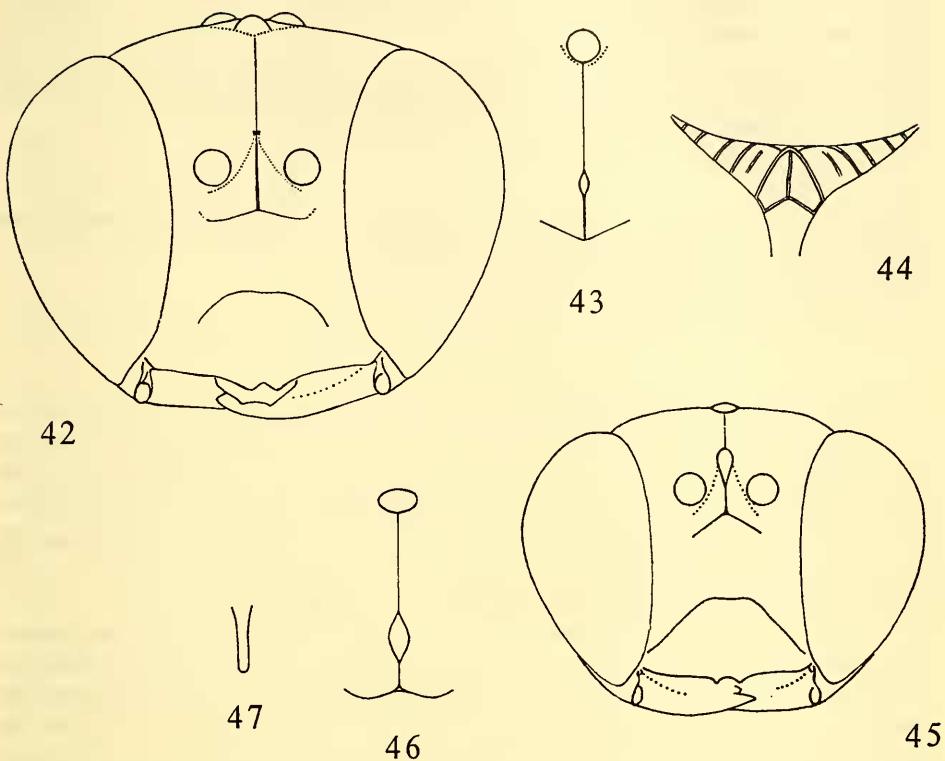


Fig. 42—44. *Psenulus sapobaensis* sp. nov., ♀, holotype. 42, face; 43, frontal carina, dorsal aspect; 44, propodeal enclosure. Fig. 45—47. *Psenulus leoninus* sp. nov., ♀, holotype. 45, face; 46, frontal carina, dorsal aspect; 47, pygidial area

wide with median longitudinal carina (Fig. 44), lateral parts with few oblique carinae. Upper part of propodeum with narrow smooth and shining area, back with fine oblique striae, transverse on lower part. Dorso-lateral edge of propodeum more coarsely reticulate, posterior part of sides finely reticulate, anterior part smooth. Metapleura shining, somewhat striate below, mesosternum and mesopleura smooth, with scattered punctures. Anterior oblique suture foveolate, widened upper part smooth. Legs stout, fore and mid femora and tibiae rather heavily built, apex of mid tibiae on outer side with narrow longitudinal depression, margined anteriorly by a reddish oblique low carina and behind by four short reddish spines. Hind tibiae on outer side with three (left tibia) or two (right tibia) longer spines. Second submarginal cell above about half as wide as lower side. First recurrent vein ending just in second submarginal cell, second recurrent vein ending well in third submarginal cell, about one-fifth of base of third submarginal cell. Petiole long, slightly more than one and a half times length of first tergite, cylindrical, apex dorsally with small triangular pit. Gaster minutely punctate, no well-defined pygidial area, just a narrow smooth and shining area bordered by a few long hairs. Base of second sternite somewhat depressed.

Pubescence of face and tempora silvery, appressed, leaving structure of clypeus well visible, face also with a number of long erect hairs. Vertex with long greyish pubescence.

Pubescence of thorax whitish, long on propodeum, dense on mesosternum. Epicnemial areas below with round patch of dense appressed silvery pubescence. Legs and gaster with yellowish-grey pubescence, denser and rather long on apical margins of fourth and fifth sternites but not fringe-like, sixth sternite densely yellowish-golden pubescent. Petiole with a few long, obliquely directed downwards, hairs, dorsum bare.

Length about 9 mm.

Male unknown.

Nigeria: 1 ♀ (holotype), Sapoba, 16 Aug., 1962, coll. D. C. Eidl, in Malaise trap (CNC).

This species is probably closely related to *P. reticulatus*.

Psenulus leoninus spec. nov.

Female. — Head and thorax black; mid part of mandibles brownish, palpi testaceous, antennae dark-brown, scape and underside of following segments reddish-brown. Pronotal tubercles slightly brownish, tegulae reddish. Fore and mid legs reddish, including trochanters, mid femora brown below, fore and mid basitarsi yellowish; hind trochanters brown, hind femora brown, apical two-thirds reddish below, rest of hind legs also reddish. Veins of wings dark-brown. Petiole including ventral plate black; gaster reddish, first tergite with large black mark almost reaching hind margin.

Frontal carina raised and widened between antennae, about two and a half times as long as broad (Fig. 46), ending below antennae in a short transverse carina, in the shape of a reversed V with obtuse angle. Face below transverse carina dull, finely aciculate; clypeal margin ending in two distinct small teeth, distance between these teeth about one eighth of total distance there between eyes (Fig. 45). Mandibles normal. Occipital carina ending in hypostomal carina. Frons densely punctate, vertex between eyes with more widespread punctures. Tempora aciculate, partly finely striate. Antennae short, third segment about one and a half times, segments 4—6 about one time, segments 7—9 about two-third times, segments 10—11 about half as long as broad at apex; last segment about one and a third times as long as broad at base.

Pronotal lateral corners with sharp anterior angle. Scutum finely densely punctate, relatively few very large punctures and on sides of anterior half transversely striate. Prescutal sutures almost reaching hind margin of scutum, rather ill-defined. Scutellum and metanotum with sparse fine punctures. Propodeal enclosure narrow, lateral parts with a few oblique carinae. Median longitudinal groove wide, with transverse carinae. Upper part of back of propodeum immediately behind enclosed area finely obliquely striate, lower half and posterior two-thirds of sides of propodeum with irregular reticulate carination; anterior part of sides dull. Metapleura shining. Mesopleura and mesosternum with few fine punctures. Anterior oblique suture coarsely foveolate, widened upper part with a few transverse carinae. Legs normal, flattened apical outer side of mid tibiae with short row of three small reddish teeth. First recurrent vein of fore wings interstitial, upper side of second submarginal cell about half length of lower side. Petiole little longer than first tergite, cylindrical, apex dorsally with long triangular emargination and small pit, anterior third dorsally flattened and medially with slight groove. Gaster very finely punctate, pygidial area narrow-triangular, lateral carinae parallel on apical half (Fig. 47).

Face below antennae with appressed silvery pubescence and erect silvery hairs. Vertex with long yellowish-grey pubescence, not dense, rest of head and thorax with whitish

pubescence, pubescence on mesosternum dense and short, also with long hairs; hairs on scutellum, metanotum and propodeum long. Epicnemial areas below with round patch of dense yellowish-white pubescence. Petiole with a few long laterally outstanding hairs. Gaster yellowish-grey pubescent, hind margins of fourth and fifth sternites with dense fringe of yellowish-golden hairs, at least as long as width of base of hind basitarsus. Sixth sternite densely yellowish-golden pubescent.

Length about 6 mm.

Sierra Leone: 1 ♀ (holotype), Freetown, August, 1967, coll. D. F. Owen (HT).

P. leoninus may be closely allied to *P. lusingae* Leclercq, described from Zaire, but it is easily distinguished by the smaller size, the shape of the lower part of the frontal carina, the shorter petiole, the coarser sculpture of the scutum, the paler legs and the darkened first gastral tergite.

Psenulus benoiti Leclercq

Leclercq, 1961a: 29—30, ♀ and ♂ (Zaire).

The female of *P. benoiti* has a remarkable sharp median longitudinal carina on the sixth tergite, as if the lateral carinae of the pygidial area have joined into one single carina. This characteristic is not found in any of the other Old World Psenini, only in the female of the Philippine *P. luteopictus* the sixth tergite is very slightly keeled. *P. mayorum* Bohart & Grissell (1969) from Mexico, shows a similar structure of the sixth tergite, but it certainly belongs to a different group of species.

A more extensive description of *P. benoiti* is given here.

Female. — Head and thorax black; antennae yellowish-brown below, brown above, mandibles reddish-brown, palpi testaceous. Pronotal tubercles and tegulae yellowish-red. Fore and mid legs including trochanters yellowish, back of femora brownish. Hind trochanters yellowish, femora brown, base of hind tibiae and tarsi yellowish-brown, apex of hind tibiae brownish. Petiole black except ventral plate, gastral tergites 1—6 reddish. Veins of wings brown.

Frontal carina between antennae hardly broadened, but with distinct narrow groove. Distinct transverse carina below antennae. Narrow protruding median part of clypeal margin not distinctly emarginate. Frons shining, finely punctate, vertex more shining, almost impunctate. Tempora finely alutaceous, almost smooth. Occipital carina ending in hypostomal carina. Third antennal segment about twice as long as broad at apex, following segments gradually shorter, segments 9—11 much broader than long, twelfth segment about one and three-quarters times as long as wide at base. Mandibles normal.

Punctuation of scutum variable, on median part of scutum large impunctate areas. Prescutal sutures almost reaching hind margin, on fore part with some transverse striae, parapsidal sutures long. Enclosed area of propodeum short, deep, median area broad but much less than in the group of *P. turneri*. Longitudinal propodeal suture widened on back-side. Back of propodeum smooth and shining, apex with some irregular carination; sides of propodeum on posterior part coarsely reticulate, almost smooth on fore part. Metapleura shining; anterior plate of mesepisternum, mesopleura and mesosternum sparsely finely punctate. Anterior oblique suture foveolate, widened upper part indistinct. Legs normal. Second submarginal cell above about two-thirds of length of lower side. Petiole long, in dorsal view about one and a half times as long as first tergite, cylindrical,

base dorsally somewhat flattened, apex with deep triangular pit. Gaster finely punctate. No normal pygidial area, but sixth tergite with sharp narrow median carina, which ends in an indistinct very small elongate and flattened part. Second gastral sternite with semi-circular depression.

Pubescence of face silvery, appressed, leaving sculpture visible. Head and thorax whitish pubescent, dense on mesosternum, petiole with long, laterally and ventrally outstanding yellowish-grey hairs, gaster with yellowish pubescence. Epicnemial areas below with circular densely whitish pubescent spot, last sternite with dense yellowish-golden pubescence, apical margins of fourth and fifth sternites with short dense pubescence, not conspicuous.

Length about 6.5 mm.

Male. — Resembling female. Fore and mid legs including trochanters more reddish, hind trochanters, femora, and tibiae dorsally, brown.

Frons on both sides of median carina somewhat convex. Frons with fine distinct punctuation. Frontal carina between antennae raised and broadened, ratio width-length about 1 : 3. Antennal segments 3—8 about one and a half times, segments 9—12 about one and one-third times as long as broad at apex, last segment about twice as long as broad at base. No distinct tylotidea, lower side of antennal segments distinctly convex. Median part of clypeal margin with two distinct small teeth. Prescutal sutures without distinct transverse striae, almost reaching hind margin and ending in a widened depression. Upper part of propodeum shining with a few indistinct punctures, back coarsely reticulate, posterior part of sides of propodeum also coarsely reticulate, fore part densely punctate. Petiole about one and one-third times as long as first gastral tergite, sides with lower carina on apical half and distinct longitudinal depression, dorsal side rounded, flattened at base and with triangular pit at apex.

Length about 6.5 mm.

Material studied: ♀ (holotype) and ♂ (allotype), Zaire, Upper Uele, Isiro (Paulis), May and July, 1947, coll. P.L.G. Benoit (MRAC).

No further material seems to have been collected thus far.

Psenulus kohli Arnold

Arnold, 1923: 50—51, ♀ (Rhodesia: Bulawayo).

Leclercq, 1961a: 30.

After study of the holotype (RM) a few remarks should be made. — Femora brown, tibiae and tarsi whitish, almost whole underside of fore tibiae light brown, mid tibiae light brown below except apices, apical half of hind tibiae brown, except a narrow yellowish-white line on outer side. Greater part of mandibles reddish.

Raised part of carina between antennae much broadened, with distinct lateral carinae, broadened part closed below by indistinct converging carinae on lower part. This does not appear from Arnold's figure (1923, Fig. 77, p. 51). Tempora broad. Upper side of second submarginal cell about two-fifths of length of lower side of cell. Propodeal enclosure very short, behind this area very fine oblique striation. Petiole cylindrical, at least one and a half times as long as first tergite, in dorsal aspect. Pygidial area very narrow elongate-triangular, lateral carinae distinct.

Also broadened part of interantennal carina silvery pubescent. Apical margins of fourth and fifth sternites with short pubescence.

This species is not closely allied to *P. capensis* and *P. latiannulatus*, as Arnold suggested, but it takes an isolated position. The gaster is not slender and the first tergite is hardly nodose. *P. kohli* is easily distinguished from other Ethiopian species by the absence of a transverse carina below the antennae and the shape of the densely silvery pubescent interantennal carina.

Psenulus luctuosus Arnold

Arnold, 1929: 405—406, ♀ (Rhodesia).

Leclercq, 1961a: 30.

Supplementary description of holotype: ♀, Vumba Mts., Umtali, Rhodesia, Febr., 1928, coll. G. Arnold (RM). — Pronotal tubercles dark brown. Interantennal carina not quite closed below, as Arnold's figure No. 37 (1929, p. 406) suggests, but slightly open and the two lateral carinae ending close together in transverse carina (cf. Fig. 48: *P. jacoti*). Anterior oblique suture strongly foveolate, widened upper part with transverse carinae. Petiole more than twice as long as first gastral tergite. Pygidial area elongate-triangular, lateral carinae slightly diverging towards base, surface irregularly finely punctate.

Petiole with long erect lateral hairs.

No further captures have come to my knowledge.

This species is closely allied to *P. jacoti* sp. nov., from which it differs in the reddish fifth and sixth tergites, the longer petiole and the slightly wider pygidial area.

Psenulus stevensoni Arnold

Arnold, 1940: 133—134, ♀ and ♂ (Rhodesia: Bulawayo).

Leclercq, 1961a: 30.

Material studied: 1 ♀, Rhodesia, Bulawayo, Hillside, 29 April, 1927 (with red type-label); 1 ♂, Bulawayo, 9 Nov., 1924 (with red type-label); 1 ♂, Bulawayo, Hillside, 29 April, 1927, all coll. R. H. R. Stevenson (RM). I have selected the female as the lectotype and the male of 9 Nov., 1924, as the paralectotype. Arnold apparently has not seen the male which was collected at the same time and locality as the female.

Supplementary description of female. — Not only basitarsi of mid legs yellowish-white, but also basitarsi of fore legs more or less yellowish. Hind legs more brown than brownish-red. Scape of antennae, following four segments completely and segments 6—9 below reddish, rest of flagellum dark brown.

Broadened part of interantennal carina open below, lateral carinae ending in transverse carina (see Fig. 48: *P. jacoti*, and Leclercq, 1961a). Scutum dull, superficially transversely striate and also with some rather large punctures. Petiole about two and a half times as long as first tergite. Pygidial area distinct, elongate-triangular.

Apical margins of fourth and fifth sternites with fringe of short white hairs.

Supplementary description of male. — Basitarsi of fore and mid legs reddish. Broadened part of interantennal carina narrower than in female, closed below and ending as a narrow single carina in transverse carina below antennae. Antennal segments 3—13 with narrow oblique tyloidea. Scutum more strongly transversely rugose. Parapsidal

sutures deep, as in female. Petiole more than twice as long as first tergite, in dorsal aspect.

For further characteristics may be referred to Arnold (1940).

Arnold considered *P. stevensoni* closely allied to *P. kohli*, but in differs from the latter species in having a distinct transverse carina below the antennae in the female, the head is much swollen behind the eyes, the propodeal enclosure is longer, and the petiole is much longer. There are much closer relationships with *P. luctuosus* Arnold, *P. jacoti* sp. nov., and perhaps also with *P. lusingae* Leclercq and *P. rugifrons* sp. nov.

On the label of the female its prey is glued, probably an adult Psyllid which is somewhat damaged.

Psenulus lusingae Leclercq

Leclercq, 1961a: 33, ♀ (Zaire).

The characteristics given by Leclercq in his key (1961a) are sufficient to recognize this species. However, a redescription including some not yet mentioned details may be useful for future study.

Female. — Head and thorax black; mandibles dark reddish except tips, palpi testaceous, scapes of antennae and underside of flagellum reddish-brown, dorsally almost black. Tegulae reddish-brown. Veins of wings brown. Legs brown, fore side of fore femora, tibiae and whole tarsi yellowish-red, mid basitarsi and second tarsal segment testaceous. Petiole including ventral plate black, rest of gaster reddish.

Raised part of frontal carina between antennae broadened, ratio width-length about 1 : 3, lateral carinae of broadened part ending separately, parallel, in transverse carina below antennae, this transverse carina almost rectangular in frontal view. Frons below ocelli finely punctate, vertex nearly impunctate. Mandibles normal. Protruding median part of clypeal margin with two distinct teeth, distance between apices about one-seventh of total distance there between eyes. Tempora very finely longitudinally striate. Antennae short, somewhat clavate, third segment about one and three-quarters times, segments 4—5 about one and one-third times, segments 6—8 about as long as wide at apex, segments 9—10 about two-thirds times, eleventh segment about half as long as wide at apex, last segment about one and a half times as long as wide at base.

Scutum opaque, very finely punctate, interspaces a few times larger than punctures. Prescutal sutures nearly reaching hind margin of scutum, not well-defined, parapsidal sutures much deeper. Scutellum and metanotum shining, sparsely punctate. Propodeal enclosure triangular, central area normal, lateral areas each with about six oblique carinae, propodeum behind enclosed area very finely and densely obliquely striate, median longitudinal sulcus gradually narrowing towards centre, followed by a few narrower alveoles. Also greater part of back-side of propodeum with very fine oblique striae, dorsolaterally a coarsely reticulate-carinate ridge, sides of propodeum on posterior half with fine reticulation, on fore part almost smooth, with fine punctures. Metapleura shining, mesopleura and anterior plate of mesepisternum extremely finely punctate. Anterior oblique suture coarsely alveolate, widened upper part with a few transverse carinae. Upper side of second submarginal cell about one-quarter of length of base. Legs normal, outer apex of mid tibiae flattened, this area defined posteriorly by about six small thorns. Petiole slender, cylindrical, over twice as long as first tergite, in dorsal aspect, dorsally rounded with small pit at apex. Pygidial area narrow, distinct. Second gastral sternite with indistinct basal depression.

Face with appressed silvery pubescence, head, thorax and legs whitish pubescent, back of propodeum below with longer hairs. Petiole laterally with long erect hairs. Gaster with short yellowish-grey pubescence, apical margins of fourth and fifth sternites with dense and short pale pubescence, sixth sternite densely yellowish-golden pubescent.

Length about 7.75 mm.

Material studied: ♀ (holotype), Zaire, Parc National de l'Upemba, Lusinga, 1.760 m, 3 July, 1947, coll. Mission G. F. de Witte, no. 542a (MRAC).

No further specimens are known at present.

Psenulus avernus Leclercq

Leclercq, 1961a: 30, ♂ (Zaire).

Supplementary description of holotype, from Rutshuru (IRSNB). — Frons shining, finely densely punctate, vertex almost impunctate. Tempora finely striate below. Antennal segments 3—11 with distinct narrow tyloidea, small and indistinct on twelfth segment.

Prescutal sutures long, almost reaching hind margin of scutum. Upper part of propodeum shining behind enclosed area, with irregular oblique striation. Back-side of propodeum with coarse reticulate carination. First recurrent vein ending just in second submarginal cell, second recurrent vein well in third submarginal cell, this cell above about half as wide as lower side of cell. Petiole long and slender, about two and one-third times as long as first tergite in dorsal aspect, laterally somewhat depressed, on apical two-thirds with indistinct upper and distinct lower keel.

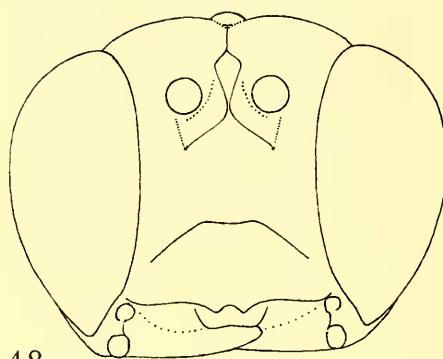
Estimated length — the gaster has been glued to the pin — 7 mm.

P. avernus is probably closely related to *P. lusingae* Leclercq, of which only the female holotype, from Lusingae, Zaire, is known. However, this female has a very densely and finely striate upper part of the propodeum; its scutum is rather dull, this part being shining in *P. avernus*.

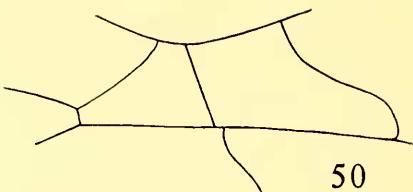
Psenulus jacoti spec. nov.

Female. — Head and thorax black; following parts reddish-brown: Mandibles except dark tips, antennae including scape, but segments 7—11 dorsally somewhat darkened, pronotal tubercles and tegulae. Palpi brown. Fore legs reddish-brown, greater part of femora below and back of trochanters black; mid trochanters and basal half of mid femora black, rest of mid legs reddish-brown; hind trochanters and femora except apex ventrally, black, hind tibiae and tarsi reddish-brown, partly blackish. Veins of wings almost black, upper half of radial cell infuscate. Gaster black, petiole ventrally and laterally, at least partly, reddish-brown, also first tergite somewhat on sides of apical part, apex of last segment reddish-brown or yellowish-red.

Frontal carina raised and much broadened between antennae (Fig. 49), narrowed below antennae into two carinae which are closely parallel or just touching, and ending in a very fine, almost indistinct, angular transverse carina (Fig. 48). Protruding median part of clypeus with two distinct triangular teeth, distance between apices of teeth about one seventh or one eighth of total distance there between eyes. Frons shining, finely and closely punctate, between oculi and ocelli much sparser punctate, behind ocelli almost impunctate. Tempora, especially lower part, with dense fine oblique striation. Apex of mandibles normally bidentate. Antennae widening towards apex, third segment about



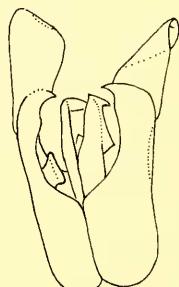
48



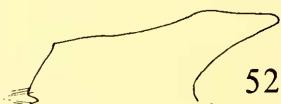
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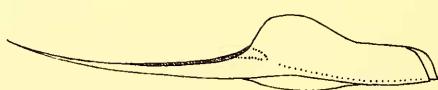
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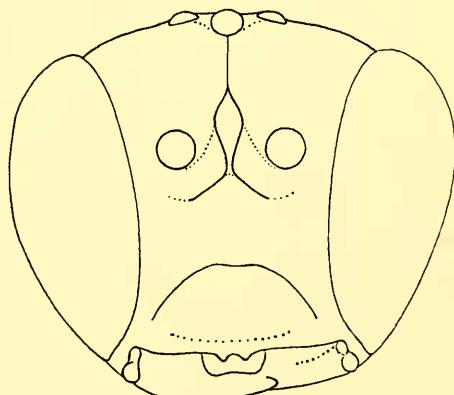
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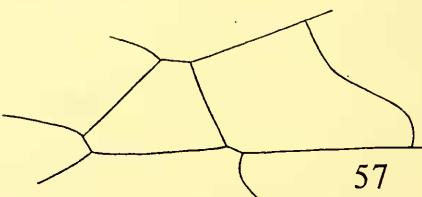
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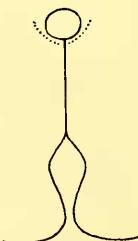
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Fig. 48—51. *Psenulus jacoti* sp. nov., ♀, paratype. 48, face; 49, frontal carina, dorsal aspect; 50, 2nd and 3rd submarginal cell of right fore wing; 51, pygidial area. Fig. 52—54. *Psenulus jacoti* sp. nov., ♂, paratype. 52, 7th sternite, lateral aspect; 53, 8th sternite, lateral aspect; 54, genitalia, dorsal aspect. Fig. 55—58. *Psenulus rugifrons* sp. nov., ♀, holotype. 55, face; 56, frontal carina, dorsal aspect; 57, 2nd and 3rd submarginal cell of right fore wing; 58, pygidial area

twice, segments 4—5 about one and a half times, segments 6—7 about one and a fourth times as long as broad at apex, segments 8—11 nearly quadrate, last segment about one and three-quarters times as long as broad at base.

Lateral corners of pronotum obtuse. Scutum shining, sparsely punctate, prescutal sutures long, on posterior margin lost in the denser punctuation. Scutellum and metanotum almost impunctate. Enclosed area of propodeum rather short, shining, with oblique carinae. Dorsal half of back of propodeum finely and densely obliquely striate, striae reaching enclosed area, lower part of propodeum with fine sculpture and punctures. Median longitudinal carina broad above, narrowing towards apex, upper part with transverse carinae. Sides of propodeum with fine oblique striae. Metapleura and mesopleura shining, sparsely punctate, mesosternum somewhat more densely punctate. Anterior oblique suture foveolate, widened upper part with transverse carinae. Legs rather stoutly built, mid tibiae flattened on outer side of apex, with a few dark red spines at posterior margin, hind tibiae with a row of short reddish spines on outer side. Second submarginal cell pentagonal (Fig. 50), first recurrent vein ending in second submarginal cell, second recurrent vein ending just in third submarginal cell, in some specimens interstitial. Petiole almost cylindrical, about one and a half times as long as first tergite (in dorsal view), dorsally slightly flattened, with small pit at apex. Gaster very finely punctate, segments 2—6 finely aciculate. Pygidial area narrow (Fig. 51), lateral carinae distinct, almost parallel, medially a line of fine punctures.

Face with appressed silvery pubescence and long, erect, silvery hairs; rest of body greyish-yellow pubescent. Epicnemial areas below with round patch of dense, yellowish-grey pubescence, appressed, apical margins of sternites 4—5 with dense, short, whitish pubescence, sixth sternite with long and dense, directed backwards, pale golden pubescence. Pubescence on mesosternum rather long and dense.

Length about 7 mm.

Male. — Similar to female but reddish-brown parts more or less darkened. In two of the three males antennal segments 3—13 black above, in one of the two males from Belmont pronotal tubercles and mid and hind legs almost completely black. In the allotype the antennae are almost completely reddish.

Transverse carina below antennae more distinct. Raised carina between antennae less broadened. Antennal segments 3—12 about one and a half times as long as broad at apex, last segment twice as long as broad at base; segments 3—11 with narrow longitudinal tylotidea, 12th segment with small, indistinct, tylotidea. Seventh sternite with small triangular emargination at apex (Fig. 52). Eighth sternite: Fig. 53. Genital apparatus (Fig. 54) short, pale brown, lateral valves with inner tooth, apices with rounded outer margin.

No conspicuous pubescence on epicnemial areas and on margins of fourth and fifth gastral sternites.

Length about 6.5—7 mm.

South Africa, Cape Province: 1 ♀ (holotype), Hilton, Grahamstown, 21 Oct., 1970, coll. C. Jacot-Guillarmod; 1 ♂ (allotype), Howison's Poort, Grahamstown, 19—22 Nov., 1971, coll. F. W. Gess; paratypes: 3 ♀, Hilton, Grahamstown, 5—9 Nov., 1970, coll. F. W. Gess, 1 ♀, Hilton, Grahamstown, 19—31 Dec., 1970, C. Jacot-Guillarmod, 1 ♀, Howison's Poort, Grahamstown, 12—14 Nov., 1971, F. W. Gess, 1 ♀, Kenton-on-Sea, Dec. 1971, R. A. Jubb, 2 ♂, Belmont Valley, Grahamstown, 28—31 Oct., 1971, coll. F. W. Gess, all in Malaise traps (AMG, one ♀ and one ♂ in author's collection).

South Africa, Transkei: 1 ♀, Port St. John, 12 Nov., 1961, coll. H. N. Empey (EC).

There is some variation in this species. In one of the females from Hilton the frontal carina is not bicarinate below the antennae, but single. In the female from Kenton-on-Sea the petiole is abnormally broadened towards the apex. The female from Transkei is paler coloured: antennae dorsally hardly darkened; fore and mid femora and trochanters brown instead of black; hind trochanters dark-brown, femora brown, hind tibiae and tarsi reddish-brown; complete petiole and great part of first tergite dark reddish; veins of wings brownish.

P. jacoti seems to be closely related to *P. stevensonii* Arnold from which it can be distinguished, e.g. by the non-striate vertex. There is also a great similarity to *P. luctuosus* Arnold, *P. lusingae* Leclercq, and *P. rugifrons* Van Lith, which all have at least the fifth and sixth tergites reddish.

***Psenulus rugifrons* spec. nov.**

Female. — Head and thorax deep black; apices of mandibles dark reddish, labrum and palpi dark brown, underside of antennal segments 5—12 with orange-brown spot. Legs black; tarsi, underside of fore tibiae and base of hind tibiae brown, apical spine of fore tibiae yellowish-brown, of mid legs whitish, inner apical spine of hind legs whitish, outer spine of hind tibiae brown. Petiole black, extreme apex dorsally, ventral plate completely and whole gaster reddish.

Frontal carina raised and broadened between antennae (Fig. 56), broadened area tapering to two parallel carinae which end in a transverse carina, reversed V-shaped (Fig. 55). Face below antennae, and clypeus, dull, finely punctate, median part of clypeus protruding, with two small teeth close together. Frons finely obliquely punctato-rugose, between eyes and ocelli finely and sparsely punctate, vertex finely rugose. Tempora finely striate. Third antennal segment about twice, segments 4—5 about one and one-third, sixth segment about one and one-fourth times as long as broad at apex, segments 7—9 about as long as broad, segments 10—11 broader than long, last segment at least one and a half times as long as broad at base. Mandibles normal.

Anterior lateral corners of pronotum obtuse. Scutum finely punctate, prescutal sutures almost reaching hind margin, not distinctly alveolate, parapsidal sutures distinct, broad. Lateral margin of scutum along tegulae strongly alveolate. Scutellum finely punctate, metanotum almost impunctate. Propodeal enclosure shining, with distinct oblique carinae on lateral parts, median part of usual width. Upper part of propodeal longitudinal sulcus broad, with a few transverse carinae, sulcus on back side of propodeum broad but not deep, dull. Fine oblique striation behind propodeal enclosure, lower part finely reticulate; propodeum postero-laterally coarsely reticulate, sides of propodeum posteriorly finely reticulate, anteriorly very finely striate. Metapleura somewhat shining, mesopleura and mesosternum shining, finely punctate. Anterior oblique suture foveolate, upper part with transverse striae. Legs normal. First recurrent vein of fore wings ending well in second submarginal cell, second recurrent vein in third submarginal cell; upper side of second submarginal cell about one-fourth of length of lower side (Fig. 57). Petiole cylindrical, nearly twice as long as first gastral tergite, apex dorsally with long triangular depression. Pygidial area distinct, narrow with almost parallel carinae (Fig. 58).

Face with short and long, silvery, appressed pubescence. Head and thorax greyish-

white pubescent, on mesosternum longer and denser. Petiole dorsally along sides with row of short hairs, laterally with long outstanding hairs. Gaster yellowish-golden pubescent, longer on last segment. Apical margins of fourth and fifth gastral sternites with dense fringe of short pale hairs, sixth sternite with long, backwards directed, yellowish-white hairs.

Length about 7 mm.

Male unknown.

Ethiopia: 1 ♀ (holotype), Jimma, 29 June—3 July, 1965, coll. A. B. Gurney (USNM).

P. rugifrons probably belongs to the group of *P. luctuosus* Arnold.

***Psenulus bidentatus* (Cameron)**

Cameron, 1910: 282, ♀ (*Psen bidentatus*; Tanzania: Kilimanjaro).

Turner, 1912: 412—413, ♀ (*Psenulus rubrocaudatus*; South Africa: Natal).

Arnold, 1923: 48—50, ♀ (Zaire: "Elizabethville" (Bequaert)).

Leclercq, 1961a: 33—34, ♀ and ♂ (Zaire).

Leclercq, 1961b: 58, ♀ and ♂ (Zaire).

P. bidentatus is recognized by the bidentate clypeus, slightly broadened raised part of interantennal carina, distinct transverse carina below antennae, finely striate tempora and long petiole. The pygidial area of the female is indistinct, the male has very strongly moniliform antennae and the raised part of the interantennal carina is narrow in most cases.

A study of the holotype (female) from the Kilimanjaro, which is in the Natural History Museum at Stockholm, revealed that most of the specimens from Zaire (recorded as *P. bidentatus* Cameron by Leclercq), part of the material from Rhodesia, and specimens from Malawi and Equatorial Guinea belong to a different form. There are distinct differences in structure as well as in colour and size and I believe that they represent at least a distinct subspecies. Future studies may lead to the conclusion that *pallidus* has specific rank.

Leclercq (1961a) pointed out that *P. rubrocaudatus* Turner is a geographical form of *P. bidentatus* in South Africa.

***Psenulus bidentatus bidentatus* (Cameron)**

Cameron, 1910: 282, ♀ (*Psen bidentatus*; Tanzania: Kilimanjaro).

Arnold, 1923: 48—50, ♀ (*Psenulus bidentatus*; Rhodesia: Salisbury).

Arnold, 1929: 406 (Fig. 38: head of ♀).

Leclercq, 1961a: 33—34, ♀ partim (Zaire).

Most of the specimens recorded by Leclercq from Zaire (1961a, b) belong to the subspecies *pallidus*. The following female from Lubumbashi (Elisabethville) is a representative of the nominate form: Lubumbashi, Oct., 1934, coll. P. Quarré (MRAC).

New records: Rhodesia: 4 ♀, Salisbury, Sept., 1916, coll. G. Arnold, 26 Sept., 1919, 14 May, 1941 (2 specimens); 2 ♀, Bulawayo "Kh" (Khami?), 21 Oct. 1938, coll. R. H. R. Stevenson (RM).

Kenya: 2 ♂, Nairobi, July and Aug., 1930, coll. V. G. L. van Someren (BM, 1972-2, pres. by Com. Inst. Ent., and BM 1959-468).

Angola: 1 ♀ and 1 ♂, 30 km N of Quiculongo, Sept.—Oct., 1957, George R. Ferguson Collection 1972 (OSUM).

Probably the first-mentioned female from Salisbury, labelled "*Psenulus Bequaerti* Brauns comp. with type, G.A.", was the one recorded by Arnold (1923). He compared it with the type of *P. bequaerti* Brauns (nomen in litt.) from Lubumbashi and stated that they differ only in minor details of colour. I presume Brauns' specimen was a female of *pallidus* subsp. nov.

The authorities of the Naturhistoriska Riksmuseet at Stockholm kindly allowed me to study the holotype (female), labelled "Kilimandj., Sjöstedt, Kibonoto Kulturz., 4 maj" (printed) and "*Psen bidentatus* Cam. type" (in Cameron's handwriting).

Supplementary description of female. — Labrum reddish. Fore and mid trochanters brown, fore and mid legs reddish but lower side of femora brown, sometimes foreside of fore tibiae and extreme base of mid tibiae yellowish, outer side of mid tibiae pale brown and basal two-thirds of mid basitarsi, sometimes also fore basitarsi, yellowish. Hind legs brown, femora almost black. Tegulae reddish, very rarely somewhat yellowish. First gastral tergite except apical margin and base of second gastral tergite dark brown; in the female from Angola also first tergite reddish.

Raised part of interantennal carina slightly broadened, lateral ridges of broadened part shining, interantennal carina ending below antennae in a distinct transverse carina. Frons densely finely punctate, almost smooth near eyes. Vertex finely punctate. Apical third of clypeus sparsely punctate. Tempora very finely striate on lower part. Third antennal segment about two and a half times, fourth segment about one and three-quarters times, fifth segment about one and a half times as long as broad at apex, segments 6—7 about as long as wide, segments 8—11 shorter than wide, last segment about one and a half times as long as broad at base.

Pronotal corners obtuse. Punctures of anterior plate of mesepisternum somewhat elongate, mesopleura strongly punctato-striate, apex below finer and more sparsely punctate. Punctuation of scutum finer, interstices mostly larger than punctures, very light tendency to transverse striation. Prescutal sutures almost reaching hind margin, fore part more linear, posterior half more foveolate. Anterior oblique suture foveolate, widened upper part with a few transverse carinae. Oblique carinae of propodeal enclosure weak. Propodeum behind enclosed area with narrow smooth margin, upper part of back of propodeum obliquely, lower part more irregularly striate. Petiole about twice as long as first tergite. Pygidial area not sharply defined, dull, indicated by two almost parallel low ridges, apex blunt, as in *P. nigeriae* Leclercq.

Length about 8.5—9.5 mm.

First description of male of nominate form. — Resembling female in colour and structure. Fore and mid basitarsi reddish or yellowish-red. First tergite except apical margin dark brown. Scape and following segments of antennae reddish, flagellum dark brown above, apical half of last segment above reddish-brown, underside of flagellum reddish.

Raised part of interantennal carina very slightly or not broadened. Antennae strongly moniliform, "en forme de toupies" (Leclercq, 1961a), segments 3—13 with narrow oblique tyloidea on back-side, segments 3—9 about one and one quarter times as long as greatest width, segments 10—11 about as long as greatest width, last segment over twice as long as greatest width. Scutum slightly more coarsely sculptured. Propodeum

behind enclosed area with fine superficial oblique striae which reach enclosed area; in the male from Angola a very narrow smooth margin behind enclosure.

Length about 7.75—8 mm.

***Psenulus bidentatus* (Cameron) var. or subsp. ?**

Ethiopia: 1 ♀, Adola, "S. Abyssinia", Nov., 1941, 7000 ft, "*Psenulus bidentatus* Cam. var. n., det. G. Arnold" (RM).

In this dark form of *P. bidentatus* (Cameron) the second and third gastral tergites are also largely blackish and the legs are slightly darker reddish-brown than in the nominate subspecies. More material is needed to decide whether it belongs to a different subspecies or is merely a variety.

***Psenulus bidentatus pallidus* subsp. nov.**

Leclercq, 1961a: 33—34, ♀ and ♂ partim (*Psenulus bidentatus*; Zaire).

Leclercq, 1961b: 58, ♀ and ♂ (*Psenulus bidentatus*; Zaire).

Female. — Mandibles yellowish. Antennae brown above, reddish-brown below. All trochanters brown. Fore femora brown, apex and foreside yellowish-red, sometimes apex pale yellow, fore tibiae yellowish, brown below, fore basitarsi yellowish-white, rest of fore tarsi yellowish-brown. Mid femora brown, apex yellowish, base and foreside of tibiae yellowish, back-side brown, mid basitarsi yellowish-white, following segments reddish-brown. Hind legs dark brown, base of femora below and base of tibiae paler. Petiole black, apex of ventral plate reddish. First gastral tergite brown except a reddish margin in the females from Lubumbashi (Elisabethville), in females from Rhodesia and Malawi all tergites reddish. Pronotal tubercles yellowish, or yellowish-red, at least on posterior half. Metanotum in one of the females from Malawi partly brownish.

Scutum coarsely striato-punctate, with irregular transverse rugae. Oblique striation on upper part of propodeum medially reaching propodeal enclosure, laterally a large smooth area.

Length about 7.5 mm.

Other characters as in nominate subspecies.

Male. — Mandibles yellow. Scape yellowish, following segments brown above, brownish-yellow below. Fore and mid trochanters yellowish-brown, hind trochanters brown. Fore legs yellowish, base, apex and foreside of tibiae and tarsi whitish, fore femora slightly darkened below in two of the three specimens studied. Mid femora brown, apex below more yellowish, mid tibiae and tarsi yellowish, foreside of tibiae and basitarsi whitish. Hind legs brown, base of tibiae paler brown.

Pronotum mostly with two yellowish-brown or brownish marks, metanotum yellowish-brown, reddish or brownish, rarely black, scutellum often somewhat brownish on posterior margin. Petiole dorsally blackish-brown, base somewhat paler, apex of ventral plate reddish. Tergites 1—6 or tergites 2—6 and apical margin of first tergite reddish.

Sculpture of scutum as in female, but interantennal carina hardly broadened, in most of the males even narrow. Behind enclosed area of propodeum a rather broad smooth margin, back-side of propodeum with irregular reticulate carination, coarser on lower half. Mesopleura more finely and sparsely punctate than in female, interstices larger than punctures, punctuation denser below, in the male from Nkolentangan mesopleura on lower

half also somewhat striate. Hypo-epimeral area shining, almost impunctate.

Length about 6.5 mm.

The male differs from the female in the yellowish or brownish marked pronotum and metanotum (rarely dark) as well as in the distinct smooth margin behind the propodeal enclosure.

Zaire (Congo): 1 ♀ (holotype), Lubumbashi, 10 Nov., 1923, coll. Ch. Seydel (MRAC). Paratypes: 1 ♀, Lubumbashi, 1932, coll. De Loose (FAG); 1 ♂, Lubumbashi, 1933, coll. De Loose, 1 ♂, Parc National Albert, Rwindi, 1000 m, 22—24 Nov., 1934, coll. G. F. de Witte, no. 793, 1 ♂, Parc National de l'Upemba, Munöï, bifurcation Lupiala, 890 m, 15—24 June, 1948 (MRAC); 1 ♂, Mabwe, Lake Upemba, 585 m, 21—28 Aug., 1947, Miss. G. F. de Witte, no. 719a (FAG); 1 ♂, Parc National de la Garamba, I/a/3, 8 May, 1950, coll. H. de Saeger, no. 497 (MRAC); 1 ♂, Parc National de la Garamba, Nagero, 10 May, 1952, coll. H. de Saeger, no. 3503 (IRSNB); 1 ♂, Haut-Uele, Abimva, 1925, coll. L. Burgeon (MRAC); 1 ♂, Haut-Uele, Isiro (Paulis), July, 1947, coll. P. L. G. Benoit (FAG); 1 ♂, Rutshuru, North Kivu, Nov., 1937, coll. J. Ghesquière, 1 ♂, Yangambi, 19 June, 1948, coll. P. L. G. Benoit (MRAC).

Malawi (Nyasaland): 1 ♀, Zamba, 18 Nov., 1943, 1 ♀, Mlanje, 2000 ft, 17 Dec., 1944 (RM).

Rhodesia: 1 ♀, "Halfway Hotel Vic. Falls Rd" (about 140 miles on the main road from Bulawayo to the Victoria Falls), Sept. 1957; 2 ♀, Selukwe, 9 Sept. and 7 Okt., 1942 (RM).

Equatorial Guinea (Spanish Guinea): 1 ♂, Nkolentangan, coll. Tessmann (ZMB).

This form, especially the male, strongly resembles *P. nigeriae* Leclercq, of which only the female sex is known, and perhaps they are closely related. It differs from the nominate subspecies not only in being more yellowish marked and in having a coarser sculptured scutum but it is also distinctly and constantly smaller. As suggested above *pallidus* may be a distinct species.

Psenulus bidentatus rubrocaudatus Turner

Turner, 1912: 412—413, ♀ (Natal).

Arnold, 1923: 48—50.

Leclercq, 1961a: 33—34.

Arnold (1923) placed *P. bidentatus* (Cameron) and *P. rubrocaudatus* Turner in synonymy, but I share Leclercq's opinion (1961) that *P. rubrocaudatus* should be considered a subspecies of *P. bidentatus*, at least as long as there is no proof that they are specifically different. *P. rubrocaudatus* is known only from South Africa: Natal (Durban) and Cape Province (Grahamstown).

It differs distinctly from *P. bidentatus* s.str., collected in Rhodesia and northward, in the much darker gaster and hind femora. Turner did not mention that the raised carina between the antennae is slightly broadened. A pygidial area is defined by two rather weak almost parallel carinae. Petiole about twice as long as first gastral tergite. Scutum distinctly punctate, with slight tendency to transverse striation. In one of the paratypes the fine oblique striae on the upper part of the propodeum reach the propodeal enclosure, on either side of the longitudinal sulcus, whilst in the fresh specimens there is a narrow smooth margin behind the enclosed area, followed by fine oblique striae, the back-side being coarsely reticulate.

Mandibles almost completely reddish, also labrum. Narrow apical margin of fourth gastral tergite reddish, in the female from Durban this margin much broader. Fore and mid femora only blackish below.

Male still unknown.

New records: South Africa, Natal: 1 ♀, Durban, June, 1959 (RM); Cape Province: 3 ♀, Howinson's Poort, Grahamstown, 22—24 Nov., 24—26 Nov. and 8—14 Dec., 1971, coll. F. W. Gess, Malaise traps (AMG).

I had the opportunity to compare these specimens with the holotype and two paratypes (all females) from Natal (BM).

Psenulus nigeriae Leclercq

Leclercq, 1961a: 34, ♀ (Sierra Leone: Njala; Nigeria).

New records from Sierra Leone: 1 ♀, Njala, Dec., 1935, coll. E. Hargreaves, pres. by Com. Inst. Ent. BM 1973—1 (BM); 1 ♀, Freetown, May, 1967, coll. D. F. Owen (HT).

The yellow marking of the female from Freetown is slightly paler than in the holotype from Njala, 21 Aug., 1929, coll. E. Hargreaves (BM). I have also seen the paratype, a female from S. Nigeria, Oshogbo, Dr. T. F. G. Mayer (BM).

Supplementary description. — Antennae dorsally dark brown, reddish below, scape pale yellow. Pronotum with two vague yellowish-brown marks, pronotal tubercles and metanotum, except narrow lateral parts, pale yellow, fore and mid legs including trochanters yellowish-white with vague brown streak on back; hind legs brown, trochanters, underside of femora and base of tibiae paler. Petiole black, ventral plate of petiole and gaster reddish.

Median part of clypeal margin distinctly bidentate, distance between apices of teeth about one-sixth or one-seventh of total distance there between the eyes. Frons very finely punctate. Raised part of frontal carina between antennae with small broadened part, medially depressed (Fig. 60). Distinct transverse carina below antennae (Fig. 59). Tempora finely aciculate. Third antennal segment about two and a half times, fourth about twice, segments 5—6 about one and three-quarter times, seventh segment about one and a half times as long as broad at apex, segments 8—9 about as wide as long, twelfth segment slightly more than twice as long as broad at base.

Pronotal corners sharp (Fig. 61). Scutum with distinct punctures of variable size and very slight tendency to transverse striation. Prescutal sutures long, almost reaching hind margin, posterior two-thirds consisting of a row of larger punctures. Behind propodeal enclosure a narrow smooth area, upper part of back-side of propodeum finely obliquely striate, lower part rather finely irregularly reticulate. Apex of mid tibiae on outer side with small bare area, raised and shining in the middle and margined posteriorly and at apex by a few short reddish spines. Petiole nearly twice as long as first tergite, in dorsal aspect. Pygidial area distinct, almost rectangular, apex blunt (Fig. 62), parallel carinae not sharp, surface dull and medially with two parallel rows of very fine punctures, each with a long erect fine hair.

Apical margins of fifth and sixth sternites with dense short pale pubescence.

Length about 8 mm.

Male unknown.

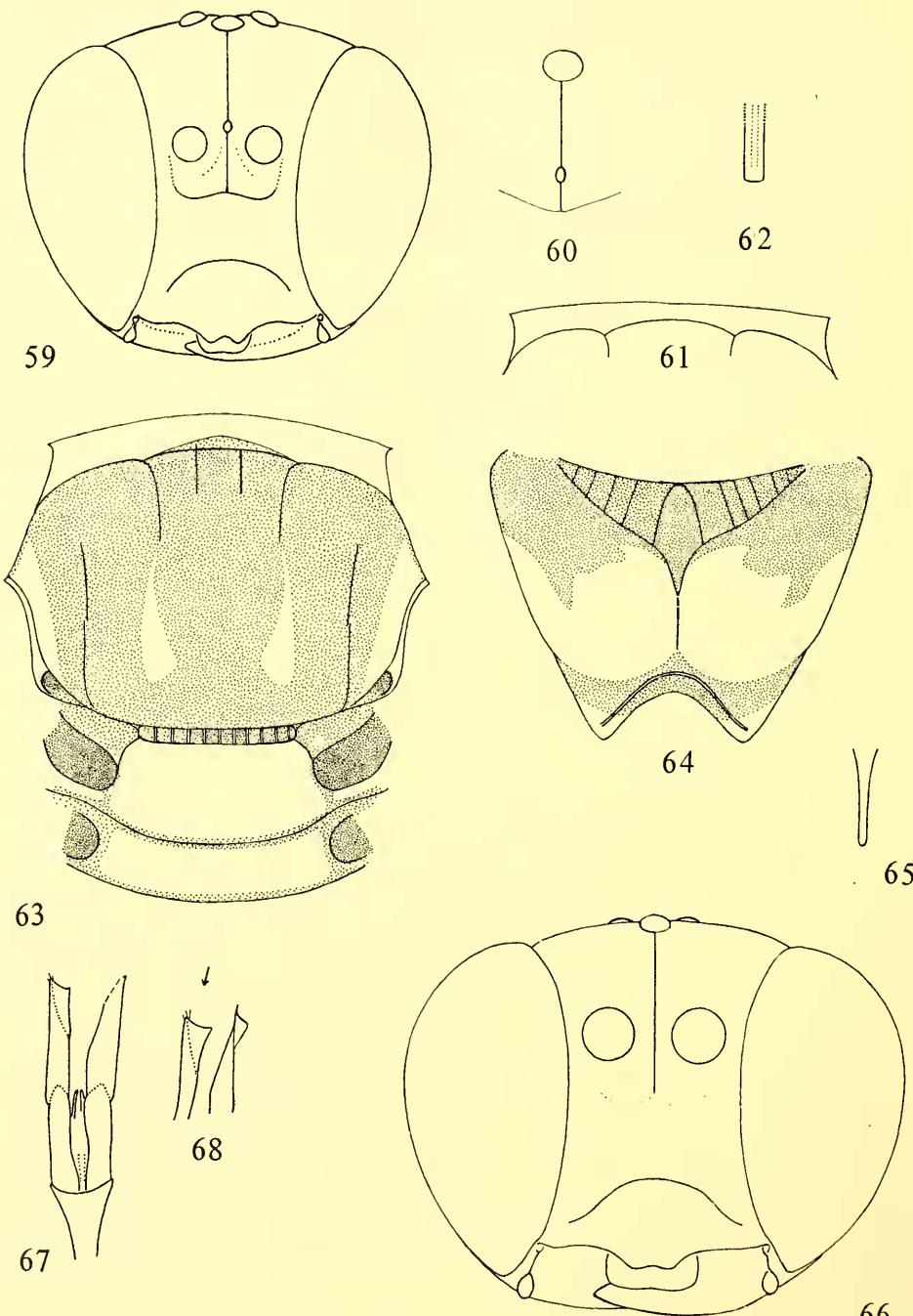


Fig. 59—62. *Psenulus nigeriae* Leclercq, ♀, Sierra Leone. 59, face; 60, frontal carina, dorsal aspect; 61, pronotum; 62, pygidial area. Fig. 63—66. *Psenulus oweni* sp. nov., ♀, holotype. 63, thorax, dorsal aspect; 64, propodeum, anterior aspect; 65, pygidial area; 66, face. Fig. 67—68. *Psenulus oweni* sp. nov., ♂, paratype. 67, genitalia, dorsal aspect; 68, apex lateral valves

P. nigeriae is closely related to *P. bidentatus* (Cameron) and most resembles the form provisionally considered to be the male of *P. bidentatus pallidus*, which is paler than the female of *P. bidentatus pallidus* but still somewhat darker than *P. nigeriae*.

Psenulus ghesquierei Leclercq

Leclercq, 1961a: 34, ♀ (Zaire).

New record: Uganda: 1 ♀, Bwamba, Hakitengya, Febr.—March, 1949, Fan trap, coll. W. H. R. Lumsden (BM).

I have compared this specimen with the holotype from Eala (Zaire), June, 1935 (MRAC) and consider them to be completely identical. As Leclercq has only given a short characteristic of *P. ghesquierei* in his key (1961a: 19), a detailed redescription of the holotype follows.

Female. — Head and thorax black; mandibles yellow with reddish-brown tips, palpi testaceous, scapes yellow, second segment yellow with brown mark above, following segments reddish-brown below, segments 3—9 brownish at apices, dorsally dark brown. Median part of pronotum yellow dorsally, lateral corners black. Pronotal tubercles yellow. Metanotum yellow, laterally reddish-brown. Tegulae yellowish, transparent. Veins of wings dark brown, paler at base. Fore and mid legs including trochanters yellow, femora darkened below, especially mid femora. Hind trochanters yellowish, hind femora brown, hind tibiae reddish above, brown below, tarsi brownish. Petiole black, ventral plate of petiole and gaster yellowish-red.

Frontal carina sharp, raised part between antennae not broadened, ending below in a distinct transverse, bilobed, carina. Frons below anterior ocellus obliquely striato-punctate, rest of frons and vertex sparsely finely punctate. Face and clypeus dull, protruding median part of clypeus with two distinct teeth, distance between tips of teeth about one-seventh of total distance there between the eyes. Tempora with fine longitudinal striation. Mandibles normal. Third antennal segment about two and a half times, segments 4—5 about twice, sixth segment about one and a half times, segments 7—8 about one and one-third times as long as broad at apex, segments 9—11 about as long as broad at apex, last segment about twice as long as broad at base.

Scutum transversely rugoso-punctate, not very coarsely, punctures fine with shining interspaces. Prescutal sutures indistinct, about as long as anterior third, parapsidal sutures distinct. Scutellum and metanotum with sparse punctuation. Propodeal enclosure triangular, lateral parts with about six oblique carinae, central part with indistinct median line, upper part of propodeum laterally with oblique striae, on both sides of median sulcus a small smooth area. Sulcus broad. Back-side of propodeum coarsely reticulate, sides less coarsely sculptured, dull anteriorly. Metapleura smooth on fore part, posterior triangular part with a few oblique carinae. Mesopleura and mesosternum with superficial irregular punctuation. Anterior oblique suture gradually widening upwards, with long transverse carinae. Anterior plate of mesepisternum with some irregular reticulation. Legs normal; mid tibiae somewhat thicker at apex, outer side flattened and bordered behind by a bent row of five short yellowish-red thorns. First recurrent vein of fore wings ending in second submarginal cell, second recurrent vein ending in third submarginal cell. Upper side of second submarginal cell about half as long as lower side. Petiole cylindrical, about one and a half times as long as first tergite, rounded above, small depression at apex. Gaster

very finely punctate, no distinct pygidial area. Base of second sternite without well-defined depression.

Face with appressed silvery pubescence, head and thorax whitish pubescent, rather dense and long on propodeum, yellowish on legs and gaster, apical margins of fourth and fifth sternites with fringe of very short pale hairs, sixth sternite with dense yellowish-golden pubescence.

Length at least 7.5 mm.

Male unknown.

***Psenulus trevirus* Leclercq**

Leclercq, 1961a: 34, ♂ (Zaire).

Redescription. Male. — Head and thorax black, with following yellow marking: mandibles except reddish tips, palpi, pronotum dorsally and pronotal tubercles, two square marks on scutellum, extreme upper corner of anterior plate of mesepisternum, metanotum, with a narrow interruption, two marks on back of propodeum close to longitudinal sulcus, as long as apical half of propodeum and each about one-fourth of width of back of propodeum. Yellow colour on thorax somewhat whitish. Underside of antennae yellowish-red. Fore and mid legs including trochanters yellowish, base and back of fore femora and back of mid femora brown, hind trochanters and femora dark brown, rest of hind legs reddish with median part of tibiae somewhat brownish. Petiole including ventral plate black but extreme base of petiole below yellowish-white; first and base of second tergite black, rest of gaster dark reddish, apex more brown. Sternites partly darkened. Veins of wings brown.

Raised part of frontal carina not broadened between antennae, transverse carina below antennae much protruding. Frons and vertex finely sparsely punctate. Clypeal margin distinctly bidentate. Tempora smooth. Antennae long, filiform, third segment about two and one-third times, segments 4—12 about twice as long as broad at apex, last segment about two and a half times as long as broad at base, segments slightly convex below; no tylotidea.

Anterior lateral corners of pronotum obtuse. Scutum coarsely punctate, interstices irregular, prescutal sutures about one-third of length of scutum, indistinct, indicated by transverse short grooves. Scutellum and metanotum almost impunctate. Enclosed area of propodeum concave, triangular, with a few indistinct oblique carinae. Back of propodeum with coarse reticulation, a smooth area behind lateral parts of enclosed area. Median longitudinal sulcus neither broad nor narrow. Sides of propodeum except narrow anterior part with coarse reticulation. Mesopleura distinctly punctate, interstices about three or four times size of punctures, hypo-epimeral area almost impunctate. Anterior oblique suture foveolate, widened upper part smooth. Legs normal. Base of second submarginal cell about one and a half times as long as upper side. Petiole long and cylindrical, about one and one-third times as long as first tergite in dorsal view, first tergite about one and a half times as long as wide at apex, slightly nodose. Petiole dorsally rounded, with small apical pit. Apex of gaster laterally depressed.

Face with appressed yellowish-silvery pubescence. Pubescence of thorax greyish, of gaster yellowish, petiole with long erect lateral hairs.

Length about 8 mm.

Female unknown.

Material studied: Zaire, "Equateur: Bokuma, II—1952, R. P. Lootens", 1 ♂ (holotype) (MRAC).

The systematic place of this species is still unclear. The shape of the antennae does not point to a close relationship to *P. bidentatus* (Cameron), as Leclercq suggested (1961a). It may be more closely allied to *P. oweni* sp. nov., from Sierra Leone.

***Psenulus oweni* spec. nov.**

Female. — Head black; mandibles pale yellow with reddish-brown tips, labrum brown, palpi pale yellow. Scape of antennae pale yellow, extreme tip brown, following antennal segments dark brown, almost black dorsally, underside reddish-yellow, tip of last segment brownish below. Thorax black with following yellow parts (Fig. 63): dorsum and upper margin of foreside of pronotum, pronotal tubercles, longitudinal mark along tegulae, two narrow marks on scutum, widened towards apex, commencing at end of prescutal sutures and ending well before apical margin of scutum — marks on scutum, especially the two median ones, may be more or less reduced, rarely lacking — a small mark on axillae — often missing — scutellum including lateral margin behind depressed lateral part, posterior margin sometimes darkened medially, metanotum with sometimes medially darkened posterior margin, back of propodeum, except two black triangular incisions projecting from the black base (Fig. 64) and black apical margin, upper third of anterior plate of mesepisternum, and a small mark on hypo-epimeral area, which may be lacking. Fore and mid legs including trochanters and tip of coxae yellowish-white, back of mid tibiae and mid tarsi somewhat orange; hind coxae pale yellow with black base, rest of hind legs reddish-orange, back of trochanters brownish, femora sometimes with brown streak behind, tarsi light-brown. Tegulae yellowish-red, veins of wings blackish-brown. Petiole black, basal third yellowish, gaster including ventral plate of petiole reddish.

Protruding median part of clypeal margin weakly emarginate (Fig. 66). Frontal carina distinct, raised part between antennae narrow, slightly flattened, ending below antennae in a small shining point; no distinct transverse carina, at most slightly indicated. Frons, vertex and tempora shining, almost impunctate. Occipital carina ending in hypostomal carina. Mandibles normal. Third antennal segment just over two and a half times, fourth segment over twice, fifth segment about twice, segments 6—9 about one and a half times, tenth segment about one and a third times and eleventh segment about one and a quarter times as long as broad at apex, last segment about one and a half times as long as broad at base. Pronotal corners with sharp angle; scutum densely, extremely finely punctate with a few larger punctures. Prescutal sutures about half as long as scutum. Scutellum and metanotum very finely punctate. Propodeal enclosure triangular, hind margin not sharply defined, median two longitudinal carinae slightly bent inwards at base, lateral parts with oblique carinae (Fig. 64). Median longitudinal suture on back of propodeum very narrow, ending in a shallow depressed triangular area at apex of propodeum. Back of propodeum smooth, dorso-laterally with weak parallel striae, sides of propodeum and metapleura smooth. Mesopleura and anterior plate of mesepisternum and mesosternum with fine hair-bearing punctures. Anterior oblique suture narrow, with a few transverse carinae, widened upper part smooth. Epicnemial areas shining. Legs normal, mid tibiae postero-dorsally with three or four reddish spines, base of hind tibiae on outer side with short flattened area, margined basally by a semi-circular area of small and short reddish

spines. Upper side of second submarginal cell nearly two-thirds of length of lower side, first recurrent vein ending distinctly in first submarginal cell, second recurrent vein ending well in third submarginal cell. Petiole in dorsal view about one and one-third times as long as first tergite, cylindrical, apex dorsally with small triangular pit. Gaster slender, almost impunctate, first tergite somewhat nodose, pygidial area distinct, narrow elongate-triangular (Fig. 65). Base of second sternite somewhat depressed.

Lower part of frons and face with appressed silvery pubescence, clypeus also with long erect hairs. Vertex and tempora with short silvery pubescence, vertex also with long hairs. Thorax with whitish pubescence, on scutum short, intermixed with long hairs. Pubescence long and denser on scutellum, metanotum and propodeum, very dense on mesosternum. Epicnemial areas below with patch of dense appressed yellowish pubescence. Pubescence of legs and gaster yellowish, hind margins of fourth and fifth sternites with dense and short yellowish-white pubescence, sixth sternite with large patch of yellowish-golden pubescence, petiole with long outstanding hairs in two lateral rows on dorsum and on sides.

Length about 8—9 mm.

Male. — Similar to female, with following differences. Small yellow mark on hypopygial area lacking, yellow markings on scutum completely lacking in the allotype, lateral hind margin of scutellum behind depressed lateral area sometimes black. Yellow marking on back of propodeum reduced to four marks, more or less united below. Fore and mid coxae brown, hind coxae black at base, posterior half reddish; fore and mid tibiae with brown streak on back, hind femora dark brown, underside reddish, hind tibiae dark brown on inner side, base reddish-brown. First gastral tergite somewhat brown at base and sternites 3—4 and 6 more or less dark brown.

Face with distinct transverse carina below antennae. Antennae long, segments distinctly convex below, segments 3—12 slightly more than twice as long as broad at apex, last segment nearly three times as long as broad at base. Genitalia: Fig. 67, 68.

Length about 8—9 mm.

Sierra Leone: Freetown, 1 ♀ (holotype), Febr., 1968, 1 ♂ (allotype), Jan., 1968; 1 ♀, Jan., 1967, 1 ♀, March, 1967, 1 ♀, April, 1967, 6 ♀, May, 1967, 2 ♀, May, 1968, 1 ♂, March, 1967, 1 ♂, Dec., 1967 (all paratypes), coll. D. F. Owen (HT, a few paratypes in author's collection).

Only in the holotype and in the allotype the marks are fully yellow, in the paratypes the colour is more whitish, the chitin being also partly transparent there.

P. oweni is easily distinguished from *P. nigeriae* by the lacking transverse carina below the antennae of the females and the richer yellow marking. It shows some relationships with the group of *P. capensis*. The male much resembles *P. trevirus* from Zaire.

Psenulus dilectus (Saussure)

Saussure, 1892: 571—572, ♀ (*Psen dilectus*; Malagasy: province of Imerina).

Schulz, 1911: 141—142 (*Psenulus dilectus* (Saussure) = *Stenomellinus dilectus* Saussure in litt.).
Arnold, 1945: 154, ♀ (Malagasy: Bekily).

Leclercq, 1961a: 35.

Leclercq, 1961c: 117, ♀ (Malagasy: Sakavondro, Ranomafana).

Material studied: 1 ♀, "Madagascar", det. J. Leclercq (FAG); 1 ♀, "Madagascar, Bekily, Rég. sud de l'île", Oct., 1936, coll. A. Seyrig (RM).

This species resembles those placed in the group of *P. capensis* Brauns in many respects; especially the vertical carinae below the antennal sclerites and the nodose first gastral tergite are striking features. However, *P. dilectus* is less slender, the transverse carina below the antennae is distinct, though very fine, and it has a distinct, narrow, pygidial area; the colour is also different. The male has not yet been found.

A few characters should be added to earlier descriptions. — Median part of clypeal anterior margin protruding, weakly emarginate. Occipital carina ending normally in hypostomal carina. Pronotal corners obtuse. Prescutal sutures distinct only on basal third of scutum. Propodeum behind enclosed area smooth and shining, backside sparsely finely punctate, apex with some reticulate carination. Petiole cylindrical, apex dorsally with small triangular pit, petiole slightly longer than first tergite, which is about twice as long as wide at apex and distinctly nodose. Apical margins of fourth and fifth gastral sternites with dense short pubescence.

Psenulus uelleburgi spec. nov.

Female. — Head black; mandibles yellow with dark tips, labrum yellowish-red, palpi straw-yellow, scape of antennae yellowish with reddish tip, following segments yellowish-red below, dorsally dark brown, last segment dorsally reddish-brown. Thorax black, with following parts (Fig. 69) yellow: dorsal side and upper half of foreside of pronotum, pronotal tubercles, large yellow mark on sides of scutum reaching fore margin, two narrow lines along prescutal sutures, about half as long as scutum, posterior half of axillae, scutellum and metanotum including posterior lateral margins, propodeum except upper lateral corners and apex, round yellow mark on anterior half of hypo-epimeral area, anterior plate of mesepisternum. Lower half of foreside of pronotum and greater part of mesopleura reddish. Fore legs including coxae yellow, foreside of mid legs yellow, back side of mid legs mostly brownish-red, hind legs reddish-brown including tibial spurs, apical half of hind femora yellowish below. Basal third of petiole yellow, rest dark brown above, ventral plate yellowish. Gaster brown, darkening towards apex. Veins of wings dark brown. Tegulae yellowish-red.

Raised part of frontal carina between antennae narrow, carina ending below antennae in a fine transverse carina, which is about half as long as distance between eyes. Supraclypeal area and upper half of clypeus dull, very finely punctate, anterior half shining, protruding median part of clypeus slightly emarginate, frons and vertex shining. Tempora smooth and shining. Occipital carina ending normally in hypostomal carina. Apex of mandibles normal. Antennae long and slender, third segment about three times, segments 4—5 about two and a half times, sixth segment about twice, segments 7—8 about one and three quarters, segments 9—11 about one and a half times as long as broad at apex, last segment about two and a half times as long as broad at base.

Pronotal corners with obtuse angle. Scutum shining, sparsely distinctly punctate. Prescutal sutures fine, about one-third of length of scutum. Parapsidal sutures sharp, linear. Enclosed area of propodeum triangular with oblique carinae on lateral parts, these parts not sharply separated from rest of propodeum, median part with irregular fine median carina. Upper third of back of propodeum smooth, finely obliquely striate below, lower two-thirds and sides of propodeum finely reticulate, fore part of sides smooth. Median longitudinal groove on back of propodeum narrow. Metapleura smooth and shining, mesopleura and mesosternum smooth with fine punctures. Anterior oblique

suture narrow, indistinctly foveolate, widened upper part smooth. Foreside of fore femora much flattened; apical two-fifths of mid tibiae with row of four dark red thorns; hind legs slender, base with small smooth depressed area, margined at base by semicircular row of thin reddish teeth. First recurrent vein of fore wings interstitial, second recurrent vein ending just in third submarginal cell. Upper side of second submarginal cell about two-thirds of length of lower side. Petiole about twice as long as first tergite, cylindrical, apex with relatively large triangular pit. Gaster elongate, first tergite much convex, pygidial area narrow and shining, with long parallel lateral carinae (Fig. 70).

Pubescence of head silvery, on face below antennae mostly appressed, yellowish on thorax, dense and silvery on mesosternum, epicnemial areas below with round patch of dense yellowish pubescence, last sternite densely yellowish-golden pubescent. Petiole with few long, obliquely downwards directed hairs.

Length about 10.5 mm.

Male unknown.

Equatorial Guinea (Spanish Guinea): 1 ♀ (holotype), "Westafrika, Uelleburg", June—Aug., 1908, coll. Tessmann (ZMB).

P. nelleburgi seems to be rather closely related to *P. dilectus* from Malagasy.

Psenulus capensis capensis Brauns

Brauns, 1899: 391—392, ♀ and ♂ (Cape Province near Port Elizabeth).

Arnold, 1923: 47—48, ♂ (Rhodesia: Matopos).

Arnold, 1947: 159—160, ♀ and ♂ (*Psenulus pauxillus* sp. nov.; Zambia: Abercorn).

Leclercq, 1961a: 30—32 (Zaire; S. Africa: Natal, S. Zululand; Cape Province).

Leclercq, 1961b: 56—57 (Zaire).

Arnold, 1962: 851—852, ♀ (*Psenulus stuckenbergi* sp. nov.; Mozambique: Marromeu).

New records: South Africa: Natal: "Mfongosi, Zululand" (Mfongozi, near Kranskop), 1 ♂, Febr., 1914, 1 ♀, May, 1916, coll. W. E. Jones (SAM); 1 ♂, Durban, no. 4457 (AMNH).

South Africa, Transvaal: Ellisras, N. Transvaal, 2 ♀, 6 April and 19 June, 1962, 3 ♀, 22 June, 1963, 1 ♀, 13 May, 1972, 3 ♂, 19 June, 1962, 2 ♂, 22 June, 1963; 1 ♂, Schoemanville, H-B Dam, 8 Aug., 1965, all coll. H. N. Empey (EC, one ♀ and one ♂ PMFV); 1 ♀, 5 miles N of Warmbad, 24 Febr., 1968, coll. Krombein and Spangler (USNM).

Zaire (Congo): 2 ♀, Kasongo, Aug., 1959, coll. P. L. G. Benoit, 2 ♂, Kivu: Uvira, Sept., 1958, coll. J. Pasteels (MRAC); 1 ♀, Tshibinda, Aug., 1931, coll. J. Ogilvie, 1 ♂, Lubumbashi (Elisabethville), Sept., 1931, coll. L. Ogilvie (BM).

Mozambique: 1 ♂, Beira, Dec., 1960 (RM).

Tanzania: 1 ♂, "Tanganyika, Kilosa", 25 Aug., 1948, at flowers of *Solanum incanum*, coll. G. Salt, BM 1971—85 (BM).

Malawi: "Nyassa-See Langenburg", 1 ♂, 31 Oct.—14 Nov., 1898, 1 ♂, end Dec., 1898—end Jan., 1899, 3 ♀, 17 Aug., 1899, all coll. Fülleborn (ZMB).

Uganda: 1 ♀, "Buunga" (?), 29 May, 1924, coll. G. L. R. Hancock, pres. by Com. Inst. Ent. BM 1973—1 (BM); 1 ♀, Ankole, Kichwamba, 23—29 April, 1968, coll. P. J. Spangler (USNM).

Sierra Leone: Freetown, 1 ♀, July, 1967, 4 ♂, March and July, 1967, Jan. and Febr.,

1968, coll. D. F. Owen (HT); 1 ♀, "Rokupr." (?), Febr., 1965, CIE 612 (241), pres. by Com. Inst. Ent. BM 1967—3 (BM).

In one of the two females from Kasongo (Zaire) the fore tibiae are completely yellowish-white, the females from Malawi have a brownish streak on the back of the fore tibiae.

P. capensis Brauns and *P. latiannulatus* (Cameron) are distinctly different species, the former having a pronotum with obtuse lateral corners (Fig. 74), whilst in *P. latiannulatus* the lateral corners always have a more or less sharp angle (Fig. 71 and 72). Moreover *P. capensis* is smaller, length in both sexes being about 7 mm (in *P. latiannulatus* about 8—9 mm), and the sculpture on frons, scutum and propodeum is generally much coarser.

The female of *P. capensis* is easily recognized by the traces of a transverse carina below the antennae, consisting of a short vertical carina downwards from each of the antennal sclerites, best visible in dorsal view, when it looks like a tooth. They are connected by a more or less distinct transverse low ridge, never forming a sharp carina. There is no distinct pygidial area but sometimes two very close parallel carinae are indistinctly indicated. Upper part of back of propodeum usually distinctly obliquely striate.

The antennae of the male have low but distinct narrow-elliptic tyloidea, small on fourth segment, on segments 5—10 about half as long as segments, smaller on segments 11—12, sometimes very indistinct on twelfth segment. Dorsal side of flagellum blackish-brown, lower side yellowish-brown; tyloidea situated on back-side of segments just in the dark part but they are somewhat paler brown. *P. latiannulatus* has no tyloidea.

I did not see Braun's types but his excellent description allows to recognize his species without any doubt. He labelled the female and the male from "Algoa Bay, Capland", as "♀ type" and "♂ type"; I have designated the female as the lectotype.

I have seen the type of *P. stuckenbergi* Arnold (1962), a female without gaster, and consider this a true *P. capensis capensis*. Arnold's figure No. 6 of the face of *P. stuckenbergi* is not exact.

P. capensis is one of the very few Ethiopian Psenini, of which we know some particulars in regard to its biology. Brauns found his couple in the month of August in stems of a species of *Phragmites* in which he thought this *Psenulus* should be nesting. Mr. Empey (letter of 23 Nov., 1972) collected his specimens about the middle of June — in the South African winter — in the subtropical area of North Transvaal (Ellisras), hovering about the reeds on the banks of the river. Finally, the female from "Rokupr.", Sierra Leone, caught in February, bears on its pin the remains of its cocoon. This cocoon very much resembles that of the Palaearctic *P. schencki* Tournier. It has a solid, flat, upper side, smooth and creamy-white on its lower surface, with remains of the inner wall of the stem solidly fastened to its circumference. The sides and bottom of the cocoon are made of a fine whitish tissue, probably covering the whole length of the cell, but keeping free from its wall.

This specimen from Sierra Leone also bears the following note on its pin: "pred. on *Hecalus* on wild rice". *Hecalus* is a Homopteron belonging to the Cicadelloidea (or Jassoidea), Hecalidae. Jassids as well as Delphacids are known as the prey of Indo-Australian *Psenulus*. The food of *Psenulus sogatophagus* Pagden consists of the Delphacid *Sogata furcifera* Horv. and the Jassid *Nephrotettix bipunctata* F., both Homoptera being pests of rice (Pagden, 1933).

Psenulus capensis laevior Arnold

Arnold, 1951: 163, ♂ (*Psenulus pauxillus laevior*; Ethiopia).
 Leclercq, 1961a: 30—31 (*Psenulus capensis*).

Arnold distinguishes this form from *P. pauxillus* Arnold (= *P. capensis* Brauns) by the brown colour of the femora which are black in *P. capensis*, the somewhat wider scutum, the lacking feeble transverse ridges between punctures of scutum and the finer sculpture of dorsum of propodeum (epinotum). Because of the variation in the sculpture of *P. capensis* series of both sexes of the Ethiopian form should be studied to place it with more certainty.

Psenulus latiannulatus latiannulatus (Cameron)

Cameron, 1910: 281—282, “♀” (= ♂) (*Psen latiannulatus*; Tanzania: Kilimanjaro)
 Turner, 1912: 413, ♂ (Nigeria).
 Arnold, 1923: 50.
 Leclercq, 1961a: 30—32, ♀ and ♂ (Zaire).
 Leclercq, 1961b: 57 (Zaire).

New records: Uganda: 1 ♂, Ankole, Kichwamba, 23—29 April, 1968, coll. P. J. Spangler (USNM).

Rhodesia: 1 ♀, Cashel, 6 Dec., 1945 (RM).

Zaire (Congo); 1 ♂, Boma, 13°0' E, 6°0' S, 14 June, 1915, coll. Lang and Chapin (AMNH); 1 ♀, Kasongo, Sept., 1959, coll. P. L. G. Benoit (MRAC), 1 ♂, Lubumbashi (Elisabethville), 25 Sept., 1962, coll. M. and A. and J. Bourgeois (HT).

Nigeria: 1 ♂, Aba, May, 1967, coll. Jean Townes (HT).

Sierra Leone: Freetown, 8 ♀, March, May, July, Oct., Dec., 1967, Febr., April, 1968, 12 ♂, Jan., July, Aug., Sept., Oct., Dec., 1967, Jan., 1968, all coll. D. F. Owen (HT).

Dr. Per Inge Persson of the Naturhistoriska Riksmuseet at Stockholm kindly sent me the holotype, which is labelled: “Kilimandjaro, Sjöstedt. 1905—6, Kibonoto, 1300—1900 m, 4 maj, Typus, *Psen latiannulatus* Cam. Type (in Cameron's writing). 307.3”. From Cameron's description of the face of his type it is evident that he had a male before him. This has been proved by examination of the holotype, so Cameron has again been misled by the long apical spine of the males of the Psenini.

The anterior corners of the pronotum are almost rectangular in the type (Fig. 72), not as sharp as in other *P. latiannulatus* studied (Fig. 71, male from Sierra Leone), but certainly not as obtuse as in *P. capensis*. Upper side of antennae dark brown, underside paler brown, more reddish at base. Although the antennae are somewhat dirty, it is sufficiently clear that there are no tyloidea. Upper part of propodeum behind enclosed area close to median longitudinal suture almost smooth, behind this smooth part a few superficial oblique rugae, back coarsely reticulate.

Fig. 75 shows sternites 5—8 of a male from Sierra Leone, somewhat extracted and bent upwards, in lateral view. Apical margin of seventh sternite (Fig. 76) not emarginate. Genital apparatus slender (Fig. 77, 78).

Pygidial area of female indistinct, in some specimens last tergite with two very superficial, very close and parallel ridges. Apical margins of fourth and fifth sternites with dense short pale pubescence.

There is some variability in the angle of the pronotal corners as well as in the puncta-

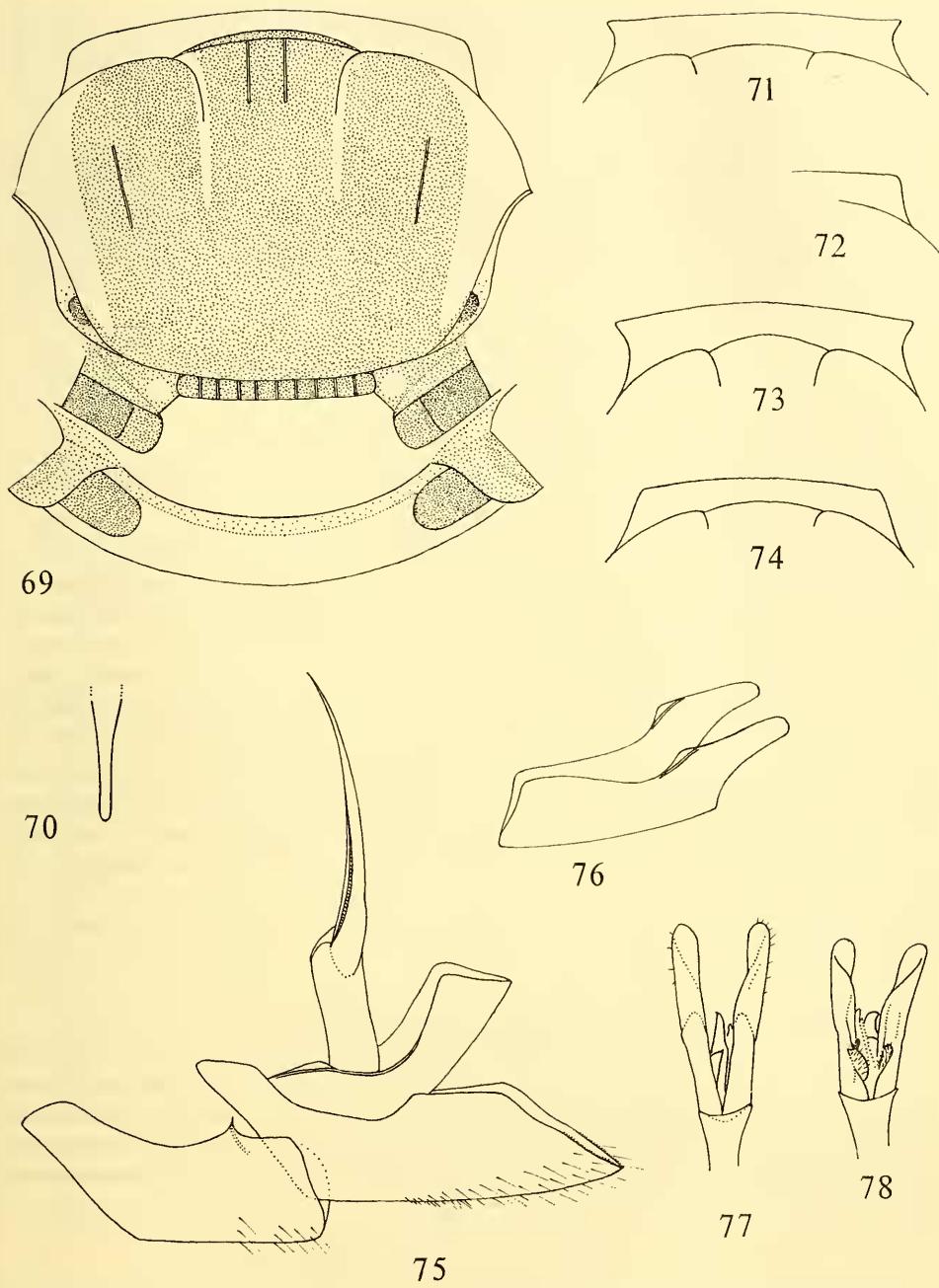


Fig. 69—70. *Psenulus uelleburgi* sp. nov., ♀, holotype. 69, thorax; 70, pygidial area. Fig. 71. *Psenulus latiannulatus latiannulatus* (Cameron), ♂, Sierra Leone. Pronotum. Fig. 72. *Psenulus latiannulatus latiannulatus* (Cameron), ♂, holotype. Right part pronotum. Fig. 73. *Psenulus latiannulatus basilewskyi* Leclercq, ♂. Pronotum. Fig. 74. *Psenulus capensis capensis* Brauns, ♂, North Transvaal. Pronotum. Fig. 75—78. *Psenulus latiannulatus latiannulatus* (Cameron), ♂, Sierra Leone. 75, 5th, 6th, 7th and 8th sternites, lateral aspect, 7th and 8th sternites bent upwards; 76, 7th sternite, lateral aspect; 77—78, genitalia, dorsal and ventral aspect

tion of the thorax. The legs of the specimens from Sierra Leone are usually more whitish than in specimens from other regions. The female from Cashel, Rhodesia, bears the following note, probably in Arnold's handwriting: "very near *Psenulus latiannulatus*, but 2nd abs. radius differs".

Length of female about 8—9 mm, of male about 8 mm.

P. latiannulatus belongs to a small group which is easily recognized by the slender form and the nodose first gastral tergite. *P. latiannulatus* and its nearest relative, *P. capensis*, have a wide area of dispersal over the Ethiopian region. *P. dilectus* Saussure may be a representative of the group in Malagasy, but the female of this species has a distinct narrow pygidial area.

***Psenulus latiannulatus basilewskyi* Leclercq**

Leclercq, 1955: 420—421, ♂ (*Psenulus basilewskyi*; Rwanda).

Leclercq, 1961a: 32—33, ♀ and ♂ (*Psenulus capensis basilewskyi*; Zaire).

New records: Cameroon: 1 ♀, Yaoundé "Amt Jaunde, Buschwald", 19—23 Oct., 1914, coll. Tessmann (ZMB). Length, sting not included, about 7.5 mm.

Zaire (Congo): 1 ♀, Kasongo, Sept., 1959, coll. P. L. G. Benoit (MRAC).

Further material studied from Zaire: 1 ♀ (allotype), Kiamokoto-Kiwakishi, Parc de l'Upemba, 1070 m, 4—16 Oct., 1948 (MRAC); 1 ♂ (paratype), Eala (Equateur), Nov., 1931, det. J. Leclercq (FAG).

In the allotype (♀) only the basal half of the antenna is yellowish-red, rest of underside dark brown, dorsal side black. Apex of fore femora on foreside, base and foreside of fore tibiae yellow, basitarsi yellowish, following segments of tarsi brownish. Base of mid tibiae yellow on foreside, tarsi including basal segment dark brown. The female from Cameroon has also foreside of mid tibiae somewhat brownish. In the female from Kasongo apical half of fore femora, fore tibiae completely, and basal two-thirds of foreside of mid tibiae yellowish-white. Antennal segments 4—12 in this specimen with reddish-brown mark below.

Propodeum behind enclosed area and back of propodeum of female smooth, with very fine dorso-lateral striae.

Male without distinct tylidea.

Length of female about 7.75 mm, of male about 7.5 mm.

The sharp anterior corners of the pronotum (Fig. 73) are an indication of the close relationships between *P. basilewskyi* and the nominate form of *P. latiannulatus* (Cameron). *P. basilewskyi* is easily distinguished in both sexes by the dark base of the hind tibiae. The apex of the mid tibia is more or less brownish. The superficial close, parallel carinae on the pygidium of the female are slightly more distinct than in *P. latiannulatus* s.str.

REMARKS ON RELATIONSHIPS

***Psen* Latreille**

Psen silvaticus Arnold (Rhodesia) and *Psen leclercqi* sp. nov. (Malagasy) probably belong to the subgenus *Psen*. Both species are remarkable because of the coarse and dense sculpture of their mesopleura. The males, still unknown, would be welcome to

confirm the subgeneric status. *Psen congolus* Leclercq (Zaire) certainly belongs to *Psen* s.str. as is also proved by the sternal tufts of hair in the male.

Psen madecassus Arnold (Madagascar) differs from *Psen* s.str. in the sculpture of the petiole and the absence of fasciculate hairs on the sternites of the male. It may belong to the subgenus *Punctipsen*, known from the palaearctic and oriental regions.

Psen patellatus Arnold (South-West Africa) is another species difficult to place. Although the antennae resemble those of *Psen ater* F., it differs in many respects so much from other *Psen* s.l. that the erection of a new subgenus seems to be justified. We hope, however, that soon the female will be discovered (the males date from half a century ago!).

Psen empeyi sp. nov. (South Africa) is a distinct representative of the subgenus *Mimesa*.

***Psenulus* Kohl**

Most of the Ethiopian species of *Psenulus* closely resemble their Indo-Australian relatives. In the majority of species the interantennal carina is broadened (primitive character?) as in all but one of the palaearctic species and about one third of the oriental forms. On the other hand the petiole is cylindrical or nearly so, which means that it is more evolved. The dorsal groove of the petiole is lacking, the sides of the first sternite, out of which the petiole has developed, being completely merged. It is already possible to distinguish one large group and a few smaller groups of closely allied species.

The group of *Psenulus turneri* Arnold is characterized by the coarse sculpture of the tempora and in the females by the fringes of long hairs on the fourth and fifth gastral sternites. It has this combination of characters in common with the group of *Psenulus rugosus* from the Philippines and Borneo. Also the triangular second submarginal cell of the oriental species is found in some of the African forms, where in some cases the cell is even petiolate. The Ethiopian group comprises *turneri* Arnold (South Africa), *paulisae* Leclercq, *erusus* Leclercq and *ealaë* Leclercq (Zaire and Sierra Leone), *garambae* Leclercq (Zaire), *aurifasciatus* sp. nov. (Sierra Leone), *freetownensis* sp. nov. (Sierra Leone and Equatorial Guinea), *patei* Arnold and *salitians* Arnold (Rhodesia), probably also *alveolatus* sp. nov. (Rhodesia) and a related, still unnamed male from Angola.

Psenulus reticulatus Arnold (Madagascar) and *sapobaensis* sp. nov. (Nigeria), with rather long petiole, oblique striae on the back of the propodeum and indistinct or absent pygidial area in the female may be closely related.

Group of *Psenulus luctuosus* Arnold. This seems to be a group distinguished by the broadened part of the interantennal carina which usually ends with two parallel carinae in the transverse carina. The pygidial area of the female is distinct. The following species should be included: *luctuosus* Arnold and *stevensonii* Arnold (Rhodesia), *jacoti* sp. nov. (South Africa), *lusingae* Leclercq (Zaire) and *rugifrons* sp. nov. (Ethiopia), probably also *avernus* Leclercq (Zaire).

In the group of *Psenulus bidentatus* (Cameron) not only the nominate form from Tanzania, Kenya, Rhodesia, Zaire and Angola, the subspecies *rubrocaudatus* Turner (South Africa) and *pallidus* subsp. nov. (Zaire, Rhodesia, Malawi and Equatorial Guinea) can be placed, but also *nigeriae* Leclercq (Nigeria, Sierra Leone).

A peculiar group is formed by the widely distributed *Psenulus capensis* Brauns and its near relatives *latiannulatus* (Cameron) with a somewhat more restricted area, *latiannula-*

tus basilewskyi Leclercq (Zaire, Rwanda, Cameroon), *dilectus* (Saussure) (Malagasy) and perhaps also *uelleburgi* sp. nov. (Equatorial Guinea) and *oweni* sp. nov. (Sierra Leone). They all have a strongly or slightly nodose first gastral tergite, the raised part of the carina between the antennae is narrow, the transverse carina below the antennae is fine or indistinct in the female; the pygidial area of the female is indistinct in *capensis* and *latiannulatus*, distinct elongate-triangular in the other forms which probably belong to this group. The Indo-Australian group of *Psenulus pulcherrimus*, especially its subgroup of *carinatus*, has the following characters in common: more or less nodose first gastral tergite, narrow interantennal carina and indistinct transverse carina below antennae in the female, but in that group the thorax is yellow marked and the pygidial area of the female is distinct.

Psenulus benoiti Leclercq (Zaire) is very remarkable, the pygidial area of the female being reduced to a single sharp and long median longitudinal carina. So far this character was only known of a few Mexican species.

The relationships of the remaining species are not clear at the moment. For this reason the species have been listed hereafter in alphabetical order.

PROVISIONAL LIST OF PSENINI OF THE ETHIOPIAN REGION INCLUDING MALAGASY

Genus **Psen** Latreille

Subgenus **Psen** Latreille

<i>P. silvaticus</i> Arnold, 1924, ♀	— Rhodesia
<i>P. leclercqi</i> sp. nov., ♀	— Malagasy
<i>P. congolus</i> Leclercq, ♀ and ♂	— Zaire

Subgenus ?

<i>P. madecassus</i> Arnold, 1945, ♀ and ♂	— Malagasy
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Subgenus ?

<i>P. patellatus</i> Arnold, 1924, ♂	— South-West Africa
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Subgenus **Mimesa** Shuckard

<i>P. empeyi</i> sp. nov., ♂	— South Africa (Transvaal)
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Genus **Psenulus** Kohl

<i>P. alveolatus</i> sp. nov., ♂	— Rhodesia
<i>P. aurifasciatus</i> sp. nov., ♀	— Sierra Leone
<i>P. avernus</i> Leclercq, 1961, ♂	— Zaire
<i>P. benoiti</i> Leclercq, 1961, ♀ and ♂	— Zaire
<i>P. bidentatus bidentatus</i> (Cameron), 1910, ♀ and ♂	— Tanzania, Kenya, Rhodesia, Angola, Zaire
<i>P. bidentatus pallidus</i> subsp. nov., ♀ and ♂	— Zaire, Rhodesia, Malawi, Equatorial Guinea
<i>P. bidentatus rubrocaudatus</i> Turner, 1912, ♀	— South Africa (Natal)
<i>P. bidentatus</i> subsp. ♀	— Ethiopia

P. capensis capensis Brauns, 1899, ♀ and ♂ — South Africa (Cape Province, Natal, Transvaal), Mozambique, Rhodesia, Malawi, Zambia, Tanzania, Uganda, Zaire, Sierra Leone

P. capensis laevior Arnold, 1951, ♂ — Ethiopia

P. dilectus (Saussure), 1892, ♀ — Malagasy

P. ealae Leclercq, 1961, ♀ and ♂ — Zaire, Sierra Leone

P. erusus Leclercq, 1961, ♀ — Zaire, Sierra Leone

P. freeetownensis sp. nov., ♀ and ♂ — Sierra Leone, Equatorial Guinea

P. fulgidus Arnold, 1945, ♀ and ♂ — Malagasy

P. garambae Leclercq, 1961, ♀ — Zaire

P. ghesquierei Leclercq, 1961, ♀ — Zaire, Uganda

P. jacoti sp. nov., ♀ and ♂ — South Africa (Cape Province, Transkei)

P. kohli Arnold, 1923, ♀ — Rhodesia

P. latiannulatus latiannulatus (Cameron), 1910, ♀ and ♂ — Tanzania, Rhodesia, Uganda, Zaire, Nigeria, Sierra Leone

P. latiannulatus basilewskyi Leclercq, 1955, ♀ and ♂ — Zaire, Rwanda, Cameroon

P. leoninus sp. nov., ♀ — Sierra Leone

P. luctuosus Arnold, 1929, ♀ — Rhodesia

P. lusingae Leclercq, 1961, ♀ — Zaire

P. nigeriae Leclercq, 1961, ♀ — Nigeria, Sierra Leone

P. oweni sp. nov., ♀ and ♂ — Sierra Leone

P. patei Arnold, 1940, ♀ — Rhodesia

P. paulisae Leclercq, 1961, ♀ and ♂ — Zaire, Sierra Leone

P. reticulosus Arnold, 1945, ♀ and ♂ — Malagasy

P. rugifrons sp. nov., ♀ — Ethiopia

P. saltitans Arnold, 1958, ♀ — Rhodesia

P. sapobaensis sp. nov., ♀ — Nigeria

P. stevensoni Arnold, 1940, ♀ and ♂ — Rhodesia

P. trevirus Leclercq, 1961, ♂ — Zaire

P. turneri Arnold, 1927, ♀ and ♂ — South Africa (Cape Province)

P. uelleburgi sp. nov., ♀ — Equatorial Guinea

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